

**BULLETIN  
of  
NORTH CAROLINA  
AGRICULTURAL AND TECHNICAL  
STATE UNIVERSITY**

**USPS 401-070**

**Greensboro**



**GRADUATE  
SCHOOL  
1983-1985**

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**BULLETIN OF NORTH CAROLINA AGRICULTURAL  
AND TECHNICAL STATE UNIVERSITY**

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GRADUATE  
SCHOOL  
1983-1985

Graduate School Office  
Room 122—Gibbs

# TABLE OF CONTENTS

GENERAL INFORMATION .....	8
History .....	9
Purpose .....	9
Administrative Officers .....	10
Organization .....	10
Degrees Granted .....	15
ADMISSION AND OTHER INFORMATION .....	17
Admission to Graduate Study .....	17
Housing .....	17
Food Services .....	17
Residence Classification for Purposes of Applicable Tuition Differentials .....	18
Financial Assistance .....	18
Expenses .....	18
Schedule of Deadlines .....	19
GENERAL REGULATIONS .....	20
Advising .....	20
Class Loads .....	20
Concurrent Registration in Other Institutions .....	20
Grading System .....	20
Professional Education Requirements for Class A Teaching Certificate .....	21
Subject-Matter Requirements for Class A Teaching Certificate .....	21
REGULATIONS FOR A MASTER'S DEGREE .....	22
Admission to Candidacy for a Degree .....	22
Credit Requirements .....	22
Time Limitation .....	22
Course Levels .....	23
Transfer of Credit .....	23
Final Comprehensive Examination .....	23
Options for Degree Program .....	23
Master's Thesis and Format .....	24
Application for Graduation .....	24
Graduate Record Examination .....	24
Second Master's Degree .....	25
Administrative Policy Concerning Changes in Requirements for Students Enrolled in Degree Programs .....	25
Commencement .....	25
Additional Regulations .....	25
DEPARTMENTS OF INSTRUCTION .....	25
Administration, Supervision and Postsecondary Education .....	25
Adult Education .....	28
Agricultural Economics and Rural Sociology .....	30
Agricultural Education .....	32
Animal Science .....	33
Art .....	34
Biology .....	35
Chemistry .....	38
Economics .....	40
Educational Media .....	41
Educational Psychology and Guidance .....	43
Engineering .....	46
Electrical Engineering .....	49
Elementary Education and Reading .....	50
English .....	56
Foreign Languages .....	59
Health, Physical Education and Recreation .....	59
History .....	61
Home Economics .....	63
Industrial Education .....	67
Industrial Engineering .....	70
Mathematics .....	73
Mechanical Engineering .....	75
Music .....	77
Physics .....	77
Plant Science and Technology .....	78
Political Science .....	79
Safety and Driver Education .....	79
Secondary Education and Curriculum .....	80
Speech and Drama .....	82
Sociology and Social Service .....	82



Edward B. Fort  
Chancellor

## TO: STUDENTS AND PROSPECTIVE STUDENTS

North Carolina Agricultural and Technical State University is a unique comprehensive state-supported University. It is the only comprehensive University in this State which has both a School of Engineering and a School of Agriculture — in consonance with its land-grant tradition. In addition, strong program offerings are provided in the Schools of Arts and Sciences, Business and Economics, Education and Nursing. Additionally, the Institution has a viable Graduate School. Consequently, matriculating students are provided unique and varied programmatic offerings.

The University has a distinguished faculty — one committed to excellence in teaching, research and public services. Moreover, its Alumni Association is one of the most active and productive alumni organizations in the State and Nation. Its support for the University and its mission has been exemplary.

This Catalogue provides specific information you will need to know about the University. However, a University is more than its program offerings, its faculty, its students, its alumni or its campus. A University can best be described as a spirit — *Aggie Spirit*. North Carolina Agricultural and Technical State University — The Institution — would be a barren place without the presence and spirit of its human resources.

*AGGIE SPIRIT* is an integral part of this Institution's heritage and tradition. It is depicted in the lives of both the Institution's Torchbearers as well as the outstanding men and women who left the University their legacy. The heritage and traditions of the University are evident in every facet of University life. When one combines this heritage with the quality of our faculty and the soundness of our mission related programs, one readily discerns the greatness of the campus.

I commend this spirit, these programs and this University to all students and prospective students.

Edward B. Fort  
Chancellor

## **NONDISCRIMINATION POLICY AND INTEGRATION STATEMENT**

North Carolina Agricultural and Technical State University is committed to equality of educational opportunity and does not discriminate against applicants, students, or employees based on race, color, national origin, religion, sex, age, or handicap. Moreover, North Carolina Agricultural and Technical State University is open to people of all races and actively seeks to promote racial integration by recruiting and enrolling a larger number of white students.

North Carolina A&T State University supports the protections available to members of its community under all applicable Federal Laws, including Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Sections 799A and 845 of the Public Health Service Act, the Equal Pay and Age Discrimination Acts, the Rehabilitation Act of 1973, and Executive Order 11246.

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## HISTORY OF THE UNIVERSITY

The University of North Carolina is comprised of all the public institutions of higher education in North Carolina that confer degrees at the baccalaureate level or higher. The University was authorized by the State Constitution in 1776, and it was chartered in 1789 by the General Assembly.

The University of North Carolina opened its doors to students at Chapel Hill in 1795. Thereafter, beginning in the latter part of the nineteenth century, the General Assembly of North Carolina has established and supported fifteen other public senior institutions in keeping with Article IX, Section 8, of the Constitution of North Carolina which provides that the "General Assembly shall maintain a public system of higher education, comprising The University of North Carolina and such other institutions of higher education as the General Assembly may deem wise."

By 1969, The University of North Carolina included six constituent institutions, governed by a single Board of Trustees. This multi-campus University had its beginnings in legislation enacted in 1931 that defined The University of North Carolina to include The University of North Carolina at Chapel Hill, North Carolina State University at Raleigh, and The University of North Carolina at Greensboro. In the 1960's three additional campuses were added: The University of North Carolina at Charlotte, The University of North Carolina at Asheville, and The University of North Carolina at Wilmington.

Beginning in 1877, the General Assembly of North Carolina established or acquired ten additional separately governed state-supported senior institutions of higher education. They are: Appalachian State University, East Carolina University, Elizabeth City State University, Fayetteville State University, North Carolina Agricultural and Technical State University, North Carolina Central University, North Carolina School of the Arts, Pembroke State University, Western Carolina University, and Winston-Salem State University. Then, in 1971, the General Assembly redefined The University of North Carolina, and under the terms of that legislation all sixteen public senior institutions became constituent institutions of The University of North Carolina.

The constitutionally authorized Board of Trustees of the six-campus University of North Carolina was designated the Board of Governors and this body is by law The University of North Carolina. The Board of Governors consists of thirty-two members elected by the General Assembly, and it is charged with "the general determination, control, supervision, management, and governance of all affairs of the constituent institutions." The chief executive officer of The University is the President.

Each constituent institution of The University has its own faculty and student body. The chief administrative officer of each institution is the chancellor, and the chancellors are responsible to the President.

Each constituent institution also has a board of trustees composed of thirteen members: eight elected by the Board of Governors, four appointed by the Governor, and the elected president of the student body *ex officio*. (The School of the Arts has two additional *ex officio* trustees.) The principal powers of these institutional boards are exercised under a delegation of authority from the Board of Governors.



# ORGANIZATION OF THE UNIVERSITY

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The University of North Carolina

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Julia Taylor Morton, *Vice Chairman*  
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# **NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY**

## **HISTORICAL STATEMENT**

North Carolina Agricultural and Technical State University was established as the A. and M. College for the "Colored Race" by an act of the General Assembly of North Carolina ratified March 9, 1891. The act read in part:

That the leading object of the institution shall be to teach practical agriculture and the mechanic arts and such branches of learning as relate thereto, not excluding academical and classical instruction.

The College began operation during the school year of 1890-91, before the passage of the state law creating it. This curious circumstance arose out of the fact that the Morrill Act passed by Congress in 1890 earmarked the proportionate funds to be allocated in biracial school systems to the two races. The A. and M. College for the White Race was established by the State Legislature in 1889 and was ready to receive its share of funds provided by the Morrill Act in the Fall of 1890. Before the college could receive these funds, however, it was necessary to make provisions for Colored students. Accordingly, the Board of Trustees of the A. and M. College in Raleigh was empowered to make temporary arrangements for these students. A plan was worked out with Shaw University in Raleigh where the College operated as an annex to Shaw University during the years 1890-1891, 1891-1892, and 1892-1893.

The law of 1891 also provided that the College would be located in such city or town in the State as would make to the Board of Trustees a suitable proposition that would serve as an inducement for said location. A group of interested citizens in the city of Greensboro donated fourteen acres of land for a site and \$11,000 to aid in constructing buildings. This amount was supplemented by an appropriation of \$2,500 from the General Assembly. The first building was completed in 1893 and the College opened in Greensboro during the fall of that year.

In 1915 the name of the institution was changed to The Agricultural and Technical College of North Carolina by an Act of the State Legislature.

The scope of the college program has been enlarged to take care of new demands. The General Assembly authorized the institution to grant the Master of Science degree in education and certain other fields in 1939. The first Master's degree was awarded in 1941. The School of Nursing was established by an Act of the State Legislature in 1953 and the first class was graduated in 1957.

The General Assembly repealed previous acts describing the purpose of the College in 1957, and redefined its purpose as follows;

"The primary purpose of the College shall be to teach the Agricultural and Technical Arts and Sciences and such branches of learning as related thereto; the training of teachers, supervisors, and administrators for the public schools of the State, including the preparation of such teachers, supervisors and administrators for the Master's degree. Such other programs of a professional or occupational nature may be offered as shall be approved by the North Carolina Board of Higher Education, consistent with the appropriations made therefor."

The General Assembly of North Carolina voted to elevate the College to the status of a Regional University effective July 1, 1967.

On October 30, 1971, the General Assembly ratified an Act to consolidate the Institutions of Higher Learning in North Carolina. Under the provisions of this Act, North Carolina Agricultural and Technical State University became a constituent institution of The University of North Carolina effective July 1, 1972.

Six presidents have served the Institution since it was founded in 1891. They are as follows: Dr. J.O. Crosby (1892-1896), Dr. James B. Dudley, (1896-1925), Dr. F.D. Bluford (1925-1955), Dr. Warmoth T. Gibbs (1956-1960), Dr. Samuel DeWitt Proctor, (1960-1964),

and Dr. Lewis C. Dowdy, who was elected President April 10, 1964. Dr. Cleon F. Thompson, Jr., served as Interim Chancellor of the Institution from November 1, 1980 until August 31, 1981. Dr. Edward B. Fort assumed Chancellorship responsibilities on September 1, 1981.

## **HISTORY AND PURPOSE OF THE GRADUATE SCHOOL**

Graduate education at North Carolina A. and T. State University was authorized by the North Carolina State Legislature in 1939. The authorization provided for training in agriculture, technology, applied science, and applied areas of study. An extension of the graduate program, approved by the General Assembly of North Carolina in 1957, provided for enlargement of the curriculum to include teacher education, as well as such other programs of a professional or occupational nature as might be approved by the North Carolina State Board of Higher Education.

On July 1, 1967, the legislature of North Carolina approved regional university status for the institution and renamed it North Carolina Agricultural and Technical State University. The graduate responsibilities of the institution as a regional university are to prepare teachers, supervisors, and administrators for the master's degree, to offer master's degree programs in the liberal arts and sciences, and to conduct such other programs as are deemed necessary to meet the needs of its constituency and of the state.

The University awarded its first master's degree in 1941 to Woodland Ellroy Hall. Since that time, several thousand students have received this coveted degree of advanced studies. A significant number of these graduates have gone on to other universities to achieve the prestigious doctorate degree in their chosen specialties.

The Graduate School through its various disciplines is affiliated with The American Chemical Society, The Accreditation Board for Engineering and Technology, Inc. (ABET), The National Council for the Accreditation of Teacher Education, The Council of Graduate Schools in The United States and other prestigious regional and national academic bodies.

The Graduate School has an integrated faculty and student body. It coordinates advanced course offerings of all departments within the School of Agriculture, the School of Education, the School of Arts and Sciences, and the School of Engineering. Thus, the Graduate School offers advanced study for qualified individuals who wish to improve their competence for careers in professions related to agriculture, humanities, education, social studies, science, and technology. Such study of information and techniques is provided through curricula leading to the Master of Science or Master of Arts degree and through institutes and workshops designed for those who are not candidates for a higher degree. Second, the Graduate School provides a foundation of knowledge and of techniques for those who wish to continue their education in doctoral programs at other institutions. Third, the Graduate School assumes the responsibility of encouraging scholarly research among students and faculty members.

It is expected that, while studying at this university, graduate students (1) will acquire special competence in at least one field of knowledge; (2) will develop further their ability to think independently and constructively; (3) will develop and demonstrate the ability to collect, organize, evaluate, and report facts which will enable them to make a scholarly contribution to knowledge about their discipline; and (4) will make new application and adaptations of existing knowledge so as to contribute to their profession and to human-kind.

# ORGANIZATION

## Graduate School Council

The Graduate School Council is responsible for formulating all academic policies and regulations affecting graduate students, graduate courses, and graduate curricula. The council consists of the chairpersons of the departments offering concentrations in graduate studies, the deans of the schools offering graduate instruction, the Director of the Summer School, the Vice Chancellor for Academic Affairs, the Director of Admissions, the Director of Registration and Records, and the Director of Teacher Education, five graduate students elected from the Graduate Club, and five faculty members selected from the graduate faculty. The Dean of the Graduate School serves as chairperson of the council.

## ADVISORY COMMITTEES OF THE GRADUATE SCHOOL

Standing committees of the Graduate School are organized to advise the Council on matters pertaining to present policies, to evaluate existing and proposed programs of study, and to process student petitions relating to academic matters. These committees are:

- Committee on Admissions and Retention
- Committee on Curriculum
- Committee on Publications
- Committee on Rules and Policy

## NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY

## BOARD OF TRUSTEES

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Warmoth T. Gibbs, A.B., Ed.M., LL.D. ....	<i>President Emeritus</i>



# NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY

Greensboro 27411

## Graduate Council Members

1982-83

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MARGARET A. WOODSON .....	<i>Student Representative</i>
WALTER WRIGHT, Ph.D. ....	<i>Acting Chairperson, Department of Chemistry</i>
TOMMIE YOUNG, Ph.D. ....	<i>Chairperson, Department of Educational Media</i>

## THE CITY

The City of Greensboro offers a variety of cultural activities and recreational facilities. It has become known for its colleges and universities, art galleries, libraries and museum.

The Memorial Auditorium and Coliseum attract outstanding athletic events, concerts, and other popular events. The City offers facilities for bowling, boating, fishing, horseback riding, tennis and golf.

## THE PHYSICAL PLANT

The university campus comprises modern, fire resistant buildings, all thoroughly maintained for the highest level of efficiency, located on land holdings in excess of 181 acres.

### UNIVERSITY BUILDINGS

Lewis C. Dowdy Building (Administration)  
Dudley Memorial Building  
F.D. Bluford Library  
Harrison Auditorium  
Charles Moore Gymnasium  
Coltrane Hall (Headquarters for N.C. Agriculture Extension Service)  
Memorial Union  
The Oaks (President's Residence)  
Corbett Sports Center

### CLASSROOM AND LABORATORY BUILDINGS

Animal Science Building ..... School of Agriculture  
Carver Hall ..... School of Agriculture  
Cherry Hall ..... School of Engineering  
Crosby Hall ..... School of Arts and Sciences  
Gibbs Hall ..... Social Sciences & School of Graduate Studies  
Hodgin Hall ..... School of Education  
Marteena Hall ..... Mathematics & Physics  
Merrick Hall ..... School of Business and Economics  
Noble Hall ..... School of Nursing  
Price Hall ..... Division of Industrial Education and Technology  
Benbow Hall ..... Home Economics  
Garret House ..... Home Economics  
Hines Hall ..... Chemistry  
Sockwell Hall ..... Agricultural Technology  
Ward Hall ..... Dairy Manufacturing  
Reid Greenhouses  
Graham Hall ..... School of Engineering  
Frazier Hall ..... Music — Art  
Price Hall ..... Division of Industrial Education & Technology  
Price Hall Annex ..... Child Development Laboratory  
Campbell Hall ..... ROTC Headquarters  
Barnes Hall ..... Biology



## RESIDENCE HALLS

Barbee Hall	Morrow Hall (200)	Morrison Hall (94)
Cooper Hall (400)	Haley Hall	Scott Hall (1010)
Curtis Hall (148)	Holland Hall (144)	Vanstory Hall (200)

## SERVICE BUILDINGS

Murphy Hall .....	Student Services
Brown Hall .....	Post Office
Sebastian Infirmary	
T.E. Neal Heating Plant	
Laundry — Dry Cleaning Plant	
Williams Hall .....	Cafeteria
Clyde Dehuguley Physical Plant Building	

## OTHER FACILITIES

University Farms — including 600 acres of land and modern farm buildings  
Athletic field — including three practice fields for football, quarter mile track, baseball diamond and field house

## DEGREES GRANTED

The Graduate School of North Carolina A. and T. State University offers the following degrees:

### MASTER OF ARTS

English and Afro-American Literature

### MASTER OF SCIENCE

1. Adult Education
2. Agricultural Economics
  - A. Agricultural Marketing
  - B. Production Economics
  - C. Rural Development
3. Biology
4. Chemistry
5. Electrical Engineering
6. Engineering
7. Food and Nutrition
8. French
9. Industrial Engineering
10. Mechanical Engineering
11. Specialized Teaching and Related Fields
  - A. Administration, Supervision and Post-Secondary Education
    - (1) Administration
    - (2) Supervision
  - B. Agricultural Education
  - C. Educational Media
  - D. Elementary Education and Reading
    - (1) Early Childhood Education
    - (2) Elementary Education
    - (3) Intermediate Education
    - (4) Reading

- E. Guidance or Counseling Education
  - (1) Agency Counseling
  - (2) Counselor — Education
  - (3) Human Resources
- F. Industrial Education
  - (1) Industrial Arts Education
  - (2) Vocational Industrial Education
- 12. Specialized Secondary Education Teaching Fields with Majors in Subject Matter Departments
  - A. Art
  - B. Biology
  - C. Chemistry
  - D. English
  - E. History
  - F. Mathematics
  - G. Health and Physical Education
  - H. Social Science

Master of Science programs in Agricultural Education, Education and Industrial Education enable students to become eligible for the following certificates issued by the North Carolina State Department of Public Instruction:

- 1. Graduate Elementary Certificate
- 2. Graduate Secondary Certificate
- 3. Administrator I (Master's degree)
- 4. Curriculum Instructional Specialist
- 5. Local Directors of Vocational Education
- 6. Middle Grades Occupational Exploration
- 7. Industrial Cooperative Training
- 8. Industrial Arts
- 9. Trade and Industrial
- 10. Vocational Certificate in Disadvantaged/Handicapped

# **ADMISSION AND OTHER INFORMATION**

## **ADMISSION TO GRADUATE STUDY**

All applicants for graduate study must have earned a bachelor's degree from a four-year college. Application forms must be submitted to the Graduate School Office with two transcripts of previous undergraduate and graduate studies. Processing of applications cannot be guaranteed unless they are received, with all supporting documents, in the Graduate Office at least fifteen days before a registration period. Applicants may be admitted to graduate studies unconditionally, provisionally, or as special students. Applicants are admitted without discrimination because of race, color, creed, or sex.

### **Unconditional Admission**

To qualify for unconditional admission to graduate studies, an applicant must have earned an over-all average of 2.6 on a 4 point system (or 1.6 on a 3 point system) in his/her undergraduate studies. In addition, a student seeking a degree in Agricultural Education, Elementary Education, Industrial Education, or Secondary Education must possess, or be qualified to possess, a Class A Teaching Certificate in the area in which he/she wishes to concentrate his/her graduate studies. A student seeking a degree with concentration in Administration or Guidance must possess, or be qualified to possess, a Class A Teaching Certificate. See certification exception for Vocational-Industrial Education (post secondary/private industry).

### **Provisional Admission**

An applicant may be admitted to graduate studies on a provisional basis if (1) he/she earned his/her baccalaureate degree from a non-accredited institution or (2) the record of his/her undergraduate preparation reveals deficiencies that can be removed near the beginning of his/her graduate study. A student admitted provisionally may be required to pass examinations to demonstrate his/her knowledge in specified areas, to take specified undergraduate courses to improve his/her background, or to demonstrate his/her competence for graduate work by earning no grades below "B" in his/her first nine hours of graduate work at this institution.

### **Special Students**

Students not seeking a graduate degree at A. and T. may be admitted in order to take courses for self-improvement or for renewal of teaching certificate if said students meet standard Graduate School entrance requirements. If a student subsequently wishes to pursue a degree program, he/she must request an evaluation of his/her record. The Graduate School reserves the right to refuse to accept towards a degree program credits which the candidate earned while enrolled as a special student; in no circumstances may the student apply towards a degree program more than twelve semester hours earned as a special student.

## **HOUSING**

The university maintains six residence halls for women and three for men. A request for dormitory housing accommodation should be directed to the Dean of Students at least sixty days prior to the expected date of registration.

## **FOOD SERVICES**

The university provides food service for students at minimum cost. A cafeteria and a snack bar are operated at convenient locations on the campus. Students who live in the residence halls are required to eat in the cafeteria.

## RESIDENCE CLASSIFICATION FOR PURPOSES OF APPLICABLE TUITION DIFFERENTIALS

Residence classification for tuition purposes are set forth by law in North Carolina as follows:

G.S. 116-143.1 — (The controlling North Carolina Statute) “To qualify as a resident for tuition purposes, a person must have established legal residence (domicile) in North Carolina and maintained that legal residence for at least 12 months immediately prior to his or her classification as a resident for tuition purposes.” This Statute also sets forth statutory definitions, rules, and special provisions for determining resident status for tuition purposes. These provisions include special rules with respect to persons who are married or who are within identified subclasses of minors.

University regulations concerning the classification of students by residence, for purposes of applicable tuition differentials, are set forth in detail in *A Manual To Assist The Public Higher Education Institutions of North Carolina in the Matter of Student Residence Classification for Tuition Purposes*. Each student is responsible for knowing the contents of that Manual, which is the controlling administrative statement of policy on this subject. Copies of the Manual are available on request in The Office of Admissions of A. and T. State University for purposes of student inspection.

## FINANCIAL ASSISTANCE

### Graduate Assistants

A limited number of graduate assistantships are available to qualified individuals. The student is assigned to assist a professor or a department fifteen hours per week for the duration of the assistantship. Some graduate assistants are assigned to teach freshman classes. Normally, a graduate assistant will be assigned to teach only one class per semester, but he/she may be assigned to teach a maximum of two. The assistantship offers a stipend that will assist a student to pay required tuition, fees, books, and board and lodging. Application for an assistantship must be made to the Dean of the Graduate School at least five months before fall registration. Only full-time graduate students are eligible.

### Other Assistance

Funds, such as the National Direct Student Loan Fund, are available in limited quantity for students. Requests for information concerning these funds should be directed to the Graduate School. The newest kind of financial assistance available is the Minority Presence Grant. Under the Board of Governors general Minority Presence Grant Program, white students may be eligible for special financial assistance if they are residents of North Carolina, enrolled for at least three hours of degree-credit coursework, and demonstrate financial need.

## EXPENSES

The fee charged to a full-time student carrying nine or more semester hours of work are the same as those charged to full-time undergraduate students. For one academic year, a state resident should expect to pay \$827.00 which will cover tuition and course fees; this sum does not include room and board charges. Tuition and course fees for an out-of-state student carrying a full schedule will total \$2,615 for the academic year. Current room and board rates are \$886.00 per semester.

As student fees are subject to change without prior notice, it is suggested that the Cashier's Office be consulted for complete information concerning charges for full- and part-time students.

### **Special Fees**

Fee for processing application (required only for first application for graduate studies) .....	\$15.00
Late Registration .....	20.00
Graduation fees:	
Diploma .....	15.00
Regalia .....	20.00
Transcript .....	1.00
Master's Thesis binding fee .....	20.00

### **Auditing**

To audit a course, a student must obtain permission from the Dean of the Graduate School and must submit the necessary forms during the registration period. A part-time student must pay all fees, including tuition, that would be charged to a student taking the course for credit. A full-time student is not required to pay any additional fees for auditing. A change from "credit" registration to "audit" will not be permitted after the close of the deadline date for withdrawing from a course. An auditor is not required to participate in class discussions, prepare assignments, or take examinations.

## **SCHEDULE OF DEADLINES**

The Graduate School provides schedules of specific dates for completing various requirements for a degree program. These notices are not sent to individuals automatically, but may be found in the calendar of the Graduate School, available upon request.

## **REQUEST FOR GRADE REPORTS AND TRANSCRIPTS**

The Office of Registration and Records is the official record keeping office at the college. Request for official statements regarding courses completed, grade reports, or transcripts should be directed to that office.

## **REQUEST FOR GRADUATE COURSE DESCRIPTIONS**

Course descriptions are available upon request from the Dean of the Graduate School.

# GENERAL REGULATIONS

## ADVISING

Until he/she is assigned to an advisor after he/she has been accepted as a candidate in a degree program, a graduate student is advised by a member of the graduate faculty appointed by the Dean of the Graduate School. The student, however, should consult and follow the curriculum guide prepared for his/her area of concentration. Separate curriculum guide sheets are available in the office of the department offering the concentration. They may be secured also from the Graduate School Office.

“Special” students are advised by members of the graduate faculty appointed by the Dean of the Graduate School.

## CLASS LOADS

### Full-Time Students

Class loads for the full-time student may range from 9 to 15 semester hours during a regular session of the academic year. The maximum load is 15 semester hours.

### In-Service Teachers

The maximum load for a fully employed in-service teacher must not exceed six semester hours during any academic year.

### University Staff

The maximum load for any fully employed member of the university faculty or staff will be six semester hours for the academic year.

## CONCURRENT REGISTRATION IN OTHER INSTITUTIONS

A student registered in a degree program in this Graduate School may not enroll concurrently in another graduate school except upon permission, *secured in advance*, from the Dean of the Graduate School.

## GRADING SYSTEM

Grades for graduate students are recorded as follows: A, excellent; B, average; C, below average; F, failure; S, work in progress (for courses in research); I, INCOMPLETE; W, withdrawal.

1. In order to earn a degree, a student must have a cumulative average of “B” (a grade point average of 3.0 on a system in which 1 hour of A earns 4 grade points).
2. A graduate student automatically goes on probation when his/her cumulative average falls below “B.”
3. A student may be dropped from the degree program if he/she has not been removed from probation after two successive terms as a full-time student.
4. A student may not repeat a required course in which “C” or above was earned.
5. A student may repeat a required course in which “F” was earned. A student may not repeat the course more than once. If a student fails a second time, he/she is dismissed from the degree program.
6. All hours attempted in graduate courses and all grade points earned are included in the computation of the cumulative average of a graduate student.
7. A student who stops attending a course but fails to withdraw officially may be assigned a grade of “F.”
8. All grades of “I” must be removed during the student’s next term of enrollment.



9. A student may not count towards a degree program any course in which a grade of "F" was earned.

Note: The North Carolina State Department of Public Instruction does not accept courses in which a student has received a "D" or "F" for renewal of certification.

### **PROFESSIONAL EDUCATION REQUIREMENTS FOR CLASS A TEACHING CERTIFICATE**

In all graduate degree programs except those leading to a Master of Science in Chemistry, in Biology, in Food and Nutrition, Vocational-Industrial Education, and the Master of Science in Engineering, the student at A. & T. State University must hold a Class A certificate before being admitted to candidacy.

To provide the professional education component for the student who enters graduate studies without the required credits in courses in education and who is pursuing a teaching program for the secondary school level, the following program of 24 semester hours is offered: Education 625, Education 400 (Psychological Foundations of Education), Guidance 600 and the Student Teaching Block; Education 500 (Principles and Curricula of Secondary Schools, the appropriate subject methods course, Education 637, and Education 560 (Observation and Student Teaching).

Students who have earned some but not enough undergraduate credits in education and students without "A" certificates who are seeking graduate degrees in early childhood education (Kindergarten-grade 3) should consult with the chairman of the Department of Education or the Dean of the Graduate School to work out programs to meet certification requirements.

To provide the professional education component for Vocational-Industrial Education students who enter graduate studies without the required course credits in education and who are pursuing a teaching program in Trade and Industrial Education, the following program of 24 semester hours is offered: Industrial Education 566, 662, 663, 765, 766; Education 400, 637; Agricultural Education 401.

Students who are entering the graduate program in Vocational-Industrial Education without a Class A certificate should consult with the graduate coordinator of the Department of Industrial Education to work out a specific program that will meet certification requirements. Students seeking a Masters degree in Industrial Education may be required to take undergraduate courses in education and technical options to fulfill certification requirements. Students entering the masters program in Industrial Education who are teaching in technical institutes, community colleges, and from the industrial sector will not be required to meet state certification requirements for candidacy or completion of the Masters degree in Industrial Education.

While taking undergraduate courses in education and psychology to meet certification requirements, a student may enroll in graduate-level courses in his subject matter area of concentration if he has completed the undergraduate requirements in that area.

### **SUBJECT-MATTER REQUIREMENTS FOR CLASS A TEACHING CERTIFICATE**

If a student has not completed sufficient undergraduate courses in a subject-matter field to hold a Class A certificate in that subject, he should consult with the chairman of the department offering that concentration. Together, they must work out a program to satisfy the undergraduate deficiencies by means of undergraduate courses or courses open to undergraduates and graduates.

# **REGULATIONS FOR A MASTER'S DEGREE**

## **ADMISSION TO CANDIDACY FOR A DEGREE**

Admission to graduate studies does not guarantee admission to candidacy for a degree. In order to be qualified as a candidate for a degree, a student must have a minimum overall average of 3.0 in at least nine semester hours of graduate work at A. and T., must have removed all deficiencies resulting from undergraduate preparation, and must have passed the Qualifying Essay. Some departments require additional qualifying examinations.

In order to be classified as a candidate for a Master of Science in Engineering degree, a student must have a minimum overall average of 3.0 in at least nine semester hours of approved graduate work at A. and T. and must have removed all deficiencies resulting from undergraduate preparation.

The following is the procedure for securing admission to candidacy:

1. The student secures application forms for admission to candidacy from the Graduate Office, fills them out, and returns them to that office. This step should be taken as soon as possible after the student has decided upon a degree program.
2. The Graduate Office processes the application, notifies the student of the action, and informs him/her of the time when the Qualifying Essay will next be administered.
3. The student may take the Qualifying Essay during the first term of residence in graduate studies. If a student fails the Qualifying Essay, he/she may take it a second time. After a second failure the student must enroll in a prescribed English composition course (English 300 or 621) at this university and must earn a grade of "C" or above.
4. The Graduate Office informs the student of any qualifying examinations required by the department in which he is concentrating his studies.
5. After the student has completed at least nine semester hours of graduate study at the college, he/she becomes eligible for admission to candidacy. If, at that time, he/she has maintained an average of 3.0 in graduate studies, has passed the Qualifying Essay and all departmental qualifying examinations, the Graduate School informs the student that he/she has been admitted to candidacy and assigns him/her to an advisor in his/her field of concentration.

In order to be eligible for graduation during a term, a student must have been admitted to candidacy no less than fifteen days prior to the deadline for filing for graduation during that term.

## **CREDIT REQUIREMENTS**

The minimum credit requirements for a graduate degree are thirty semester hours for students in thesis and non-thesis programs. It is expected that a student can complete a program by studying full-time for an academic year and one additional summer term or by studying full-time during four nine-week summer sessions.

The minimum credit requirements for a Master of Science in Engineering are thirty semester hours for students who elect to take the thesis option and thirty-three semester hours for students who take the non-thesis option.

## **RESIDENCE REQUIREMENTS**

A minimum of three-fourths of the hours required for the degree must be earned in residence study at the university.

## **TIME LIMITATION**

The graduate program must be completed within six successive calendar years. Programs remaining incomplete after this time interval are subject to cancellation, revision, or special examination for out-dated work.



When the program of study is interrupted because the student has been drafted into the armed services, the time limit shall be extended for the length of time the student shall have been on active duty, if the candidate resumes graduate work no later than one year following his/her release from military service.

## **COURSE LEVELS**

At the University, six-digit numbers are used to designate all course offerings. The last three digits indicate the classification level of the course. Courses numbers 600 through 699 are open to seniors and to graduate students. Courses numbered 700 through 799 are open only to graduate students. At least fifty percent of the courses counted in the work towards a Master's degree must be those open only to graduate students; that is, numbered 700 through 799.

## **TRANSFER OF CREDIT**

A maximum of six semester hours of graduate credit may be transferred from another graduate institution if (1) the work is acceptable as credit toward a comparable degree at the institution from which transfer is sought, and (2) the courses to be transferred are approved by the Dean of the Graduate School.

To request a transfer of credit, the student must complete an application in the Graduate School Office. It will be the applicant's responsibility to request from the appropriate institution(s) a statement certifying that the work is acceptable as credit toward a comparable degree. The transcript should then be sent to the Graduate School Office of A. and T. State University.

## **FINAL COMPREHENSIVE EXAMINATION**

At least 45 days before a candidate expects to complete all work for the graduate degree, the candidate should file in the Graduate office an application for a final examination.

1. All graduate students are required to pass a written comprehensive examination in their area of specialty.

In the case of Engineering students, the School of Engineering will recommend to the graduate school whether or not this comprehensive examination will be oral or written.

2. Students pursuing a degree of M.S. in Education, subject-matter oriented, will take a comprehensive examination in two parts, subject-matter and professional education. The evaluation will be made by the faculties in the respective areas.
3. If a student fails a comprehensive examination twice, he/she must petition for a third examination. The petition is reviewed by a committee from the student's major concentration. A student who fails a third time is dismissed from the degree program.
4. Comprehensive examinations are to be scheduled by the departments, with the approval of the Graduate Office. A report of the student's performance must be submitted to the Graduate Office at least three weeks prior to Commencement.

## **OPTIONS FOR DEGREE PROGRAM**

The student, in consultation with his/her advisor, selects the degree program to be followed. The advisor must notify the chairperson of the department of the program plan which the candidate prefers to follow.

### **Thesis Option**

In order for a student to pursue a thesis program, he/she must be recommended to the Dean of the Graduate School by his/her advisor and the chairperson of the department in which a student is concentrating his/her studies. The Graduate School must then approve the student as a candidate. The thesis program consists of thirty semester hours including

the thesis. After receiving written approval to follow the thesis option, the candidate shall prepare and present the thesis proposal to the advisor. Upon the request of the advisor, the Dean of the Graduate School shall appoint a Thesis Proposal Committee and shall fix a time of meeting. Following acceptance of the proposal, the advisor must submit to the Dean of the Graduate School an approved copy of the proposal in its final form. Individuals who have been granted the privilege of following the thesis option are expected to demonstrate research competencies and to prepare a scholarly account of resulting data.

### **Non-Thesis Option**

The non-thesis plan is offered to the candidate who may benefit more from a broader range of studies than from the preparation of a thesis. The program of study must consist of a minimum of 30 credit hours of prescribed courses.

Individuals who are following this plan must demonstrate their ability to conduct and to report the results of original research by preparing a paper as a part of the course Special Problems or Research or Seminar in the appropriate area.

### **Thesis Option [Master of Science in Engineering]**

In order for a student to pursue a thesis program, he/she must be recommended to the Dean of the Graduate School by the Dean of the School of Engineering. The Graduate School must then approve the student as a candidate. The thesis program consists of thirty semester hours including the thesis. After receiving written approval to follow the thesis option, the candidate shall prepare and present the thesis proposal to the chairperson of his/her Advisory Committee. Following acceptance of the proposal, an approved copy of the proposal in its final form must be submitted to the Dean of the Graduate School.

### **The Non-Thesis Option [Master of Science in Engineering]**

The non-thesis plan is offered to the candidate who may benefit more from a broader range of studies than from the preparation of a thesis. The program of study must consist of a minimum of 33 credit hours of prescribed courses.

## **MASTER'S THESIS AND FORMAT**

The following regulations for a Master's thesis and the format of the thesis:

1. A student writing a thesis must register for the course, Thesis, prior to the semester in which he/she expects to take the final examination.
2. Three typewritten copies of the completed thesis must be submitted to the Dean of the Graduate School, together with two copies of an abstract of the thesis. The abstract should be 400 to 500 words. Consult the Graduate School's calendar for deadline dates regarding submission of these manuscripts.
3. Additional information concerning the format is available in the Graduate School Office.

## **APPLICATION FOR GRADUATION**

A candidate for graduation must file an application for graduation at least 30 days prior to the close of the session in which he/she expects to complete the requirements for the degree. A student secures the application forms from his/her advisor, who must approve the application before it is sent to the Graduate School Office. Failure to meet the deadline may result in delay of graduation for the candidate.

## **GRADUATE RECORD EXAMINATION**

The Graduate Record Examination is required of all students who desire to become candidates for the Master of Science degree. Information concerning the time, place, and cost of the examination may be obtained from the office of the Dean of the Graduate School.

## **SECOND MASTER'S DEGREE**

The Graduate School of North Carolina A. and T. State University provides an opportunity for a student holding a Master's degree to earn a second Master's degree in another discipline or specialty. To be admitted for a second Master's degree, the student files the appropriate admission application, submits transcripts and provides pertinent examination scores.

During the first semester, the student makes application for candidacy. In the last semester of courses, the student files for the comprehensive examination in the new specialty. In collaboration with the advisor, the student plans the new program to include a minimum of 18 semester hours in the new specialty to be taken in the University. Twelve hours will be accepted from the first Master's providing that degree was completed at North Carolina A. and T. State University. If the student is a transfer student, twenty four hours must be completed in the new program since University regulations allow only six semester hours to be accepted in transfer credits.

## **ADMINISTRATIVE POLICY CONCERNING CHANGES IN REQUIREMENTS FOR STUDENTS ENROLLED IN DEGREE PROGRAMS**

Generally, a student is permitted to graduate according to the requirements specified either in the catalogue current during the year of his/her first application for candidacy or in the catalogue current during the year of his/her application for graduation. If more than six years pass between the student's application for candidacy and his application for graduation, the university reserves the right to require the student to satisfy the regulations in effect at the time of his/her application for graduation. In all instances, the Graduate School reserves the right to require students in programs in Agricultural Education, Education, or Industrial Education to satisfy the requirements specified by the North Carolina Department of Public Instruction at the time of the Student's completion of the requirements for the Master of Science degree.

## **COMMENCEMENT**

Diplomas are awarded only at the commencement exercises following the completion of all requirements for the degree. Attendance at Commencement is required of all graduating students unless individually excused by the Dean of the Graduate School.

## **ADDITIONAL REGULATIONS**

Additional rules, regulations, and standards for each of the areas of graduate study appear in the appropriate sections of the catalogue. The prospective student should read such sections with care.

## **DEPARTMENT OF ADMINISTRATION, SUPERVISION AND POSTSECONDARY EDUCATION**

**Henry T. Cameron, Acting Chairperson  
Room 112, Hodgin Hall**

The objectives of the Department of Administration, Supervision and Postsecondary Education are to offer graduate level programs of preparation in educational administration and supervision and postsecondary education. The masters degree programs in administration and supervision are consistent with state adopted competency based guidelines and lead to North Carolina certification at the Administrator I and Curriculum-Instructional Specialist I levels. The Department also offers programs of certification for those students who already hold a masters degree in education with certification in other professional areas. The graduate program is designed to prepare students for positions in administration, supervision and teaching or administration primarily at the community college and technical institute levels.

## **Degrees Offered**

Education — Administration — M.S.

Education — Supervision — M.S.

Certification in Administration

Certification in Supervision (Curriculum Instructional Specialist)

## **General Program Requirements**

Requirements for admission to degree programs in the Department of Administration, Supervision and Postsecondary Education are as follows:

1. Baccalaureate degree from an accredited undergraduate institution
2. Class "A" Certificate in area of concentration
3. Satisfactory completion of all graduate school requirements for admission to candidacy for a degree

Under policies of the Graduate School, candidacy for a degree requires the following:

1. The Qualifying Essay
2. The Graduate Record Examination (aptitude and advanced test in education)

## **Departmental Requirements**

The major in both Administration and Curriculum-Instructional Specialist must complete thirty-one semester hours of university work for the graduate degree and must maintain an overall grade point average of 3.0

Students who already hold a masters degree and seek certification only must meet all program requirements for certification, including a minimum of twelve semester hours in the department.

All students, both degree candidates and certification candidates already holding a masters degree, must satisfactorily complete the Departmental Comprehensive Examination in the area of certification sought.

Before enrolling in a degree program or a program of certification, each student is required to meet with the departmental chairperson and to be assigned a faculty advisor who will be responsible for approval of the student's program of studies. The student who holds a masters degree and seeks certification only must submit a transcript of his/her graduate studies to the departmental chairperson prior to, or at the time of, the initial conference.

## **Accreditation**

The graduate degree programs in administration and supervision are approved by the North Carolina State Department of Public Instruction, National Council for Accreditation of Teacher Education (NCATE) and the Commission on College of the Southern Association of Colleges and Schools.

## **Career Opportunities**

Graduate degree and certification programs qualify the student for the principalship and/or supervisory positions at the elementary and secondary school levels. The program in postsecondary education is designed to meet the needs of administrative, supervisory and teaching personnel at the community college and technical institute levels.

# **CURRICULUM GUIDE**

## **Administration: 31 Semester Hours Required**

This program is designed for students who are interested in qualifying for State Certification as Administrator I (the principal's certification). Completion of this program does not qualify one for the graduate teaching certificate.

Students pursuing certification, but not the masters degree are required to complete at least 12 semester hours at this University.

Education 761, Organization and Administration, is a prerequisite for all other professional courses in the specific areas of organization, administration, curriculum, instruction and

supervision (items 1b and 1c in the requirements outlined below).

1. Courses

- a. Foundations in Education — 3 hours  
320-726 Educational Psychology or  
311-701 Philosophy of Education
- b. Organization and Administration — 6 hours selected from:  
312-760 The Junior High School  
312-761 Organization and Administration of Schools  
312-762 The Principalship
- c. Curriculum, Instruction and Supervision — 6 hours selected from:  
310-720 Curriculum Development  
312-755 Supervision of Instruction  
312-756 Supervision of Student Teachers
- d. Cognate Disciplines — 6 hours selected from:  
Economics  
Political Science  
Sociology  
Anthropology
- e. Internship — Administrative Field Experience — 3 hours  
312-769 Problems in Educational Administration
- f. Six (6) hours electives

2. Other Requirements

- a. GRE (aptitude and advanced test in education)
- b. Masters Comprehensive in Education and Administration
- c. Overall grade point average of 3.0 for all graduate courses

**Curriculum Instructional Specialist: 31-34 Semester Hours Required**

For the Curriculum Instructional Specialist's I (masters degree) Certificate, the State of North Carolina requires five (5) years of teaching and/or supervisory or administrative experience within the past eight years. A student will not be recommended for the North Carolina Instructional Specialist's Certificate without the minimum five (5) years of experience specified above.

Requirements for Unconditional Admission:

1. Baccalaureate degree from an accredited institution
2. Overall grade point average of 2.6 in undergraduate studies
3. Class "A" Certificate (or qualification for such certificate)
4. Failure to meet any of these criteria may cause rejection of the applicant or may require additional undergraduate work to satisfy the requirements.

Courses in Education and Psychology — 15 semester hours

1. Supervision — 3 hours required  
312-755 Supervision of Instruction  
312-757 Problems in Supervision in the Elementary School  
312-758 Problems in High Schools Supervision
2. Curriculum — 3 hours required  
310-720 Curriculum Development  
310-712 Curriculum in the Elementary School  
310-722 Curriculum in the Secondary School
3. The Nature of Learning and the Learning Process — 3 hours required  
320-635 Educational Psychology and Learning  
320-726 Educational Psychology  
311-727 Child Growth and Development
4. Organization and Administration — 4 hours required  
312-761 Organization and Administration of Schools (Prerequisite)
5. Educational Research — 3 hours required  
312-790 Seminar in Educational Problems

Required courses in subject matter to qualify for issuance of the graduate teacher's certificate — early childhood or intermediate, or secondary — 12-18 semester hours.



Electives — If 12 semester credit hours are used to satisfy the above, 3 hours may be used as electives to meet the particular needs of the student.

#### Other Requirements

1. Qualifying Examination
2. Graduate Record Examination
3. Masters Comprehensive Examination in Education
4. Masters Comprehensive Examination in Supervision
5. Overall grade point average of 3.0 for all graduate courses.

Total number of hours required 31-34 (31 for those completing work for the supervisor's program at the Early Childhood Education level and the Intermediate Education level).

#### Faculty

Charles E. Bailey, Jr., B.A., J.C. Smith University; M.S., N.C. A&T State University;

Ph.D., University of Connecticut; Associate Professor of Education

Marion Blair, B.S., A&T College; M.A., Seton Hall University; Ed.D., Indiana University; Professor

Henry T. Cameron, B.S., South Carolina State College; M.A., Fairfield University; Ed.D., University of Massachusetts, Associate Professor

Lewis C. Dowdy, A.B., Allen University, Columbia, S.C.; M.A., Indiana State College; Ed.D., Indiana University; Professor of Education, Chancellor Emeritus

Winfred J. House, A.B., M.A., Ed.D., Duke University; Professor

Samuel J. Shaw, B.S., Fayetteville State College; M.A., North Carolina College; Ph.D., The University of North Carolina at Chapel Hill; Professor and Dean, School of Education

Albert E. Smith, B.S., North Carolina A&T State University; M.S., George Williams College; Ph.D., University of Pittsburgh; Professor

Sullivan Welborne, B.S., M.S., North Carolina A&T State University; Ed.D., University of North Carolina at Greensboro, Assistant Professor

#### Courses

312-668 School Law and the Classroom Teacher

312-690 The Community College and Postsecondary Education

312-763 Public School Administration

312-764 Pupil Personnel Administration

312-765 School Community Relations and Communication

312-766 School Planning

312-767 Public School Finance

312-768 Principles of School Law

312-771 Program Development: Community Education

312-772 Program Management: Community Education

312-776 Principles of College Teaching

312-777 Seminar in Postsecondary Education

312-778 Student Personnel Services

312-779 Technical Education in Community Junior Colleges

312-781 Internship (Community College Technical Institute)

#### DEPARTMENT OF ADULT EDUCATION AND COMMUNITY SERVICES

**B.W. Harris, Chairperson**

**Room 202, Hodgkin Hall**

#### Focus:

The general aim of the Master of Science in Adult Education program is to prepare present and prospective teachers of adult learners so that they will be capable of performing this role assignment. Emphasis is placed on the development of those competencies which are necessary for teaching the adult more effectively.

**Objectives:**

Upon completion of the program, graduates will be expected to demonstrate these skills or competencies:

1. A broad understanding of and familiarity with the general field of adult education, i.e., concepts, theories, and teaching methods.
2. Ability to construct a curriculum involving the learners and relevant resources.
3. Ability to conduct (teach) a meaningful teaching-learning experience.
4. An understanding of an ability to evaluate a teaching-learning experience.
5. A perception which indicates a holistic and interdisciplinary view regarding adult/continuing education.
6. Capability to make a thorough assessment of the needs of adults.
7. The ability to define and formulate behavioral learning objectives.

**Degree Offered:**

Adult Education — M.S.

**General Program Requirements:**

The admission of students to the graduate degree program in the Department of Adult Education and Community Services is based upon the general admission requirements of the University.

**Department Requirements:**

Students following the thesis program must complete a minimum of 30 semester hours of course work while those following the non-thesis option must complete a minimum of 33 semester hours unless the program description states otherwise. All graduate students must maintain a grade point average of 3.0 on a 4.0 scale. At least 50% of the courses counted toward the graduate degree must be of courses offered to graduate students only, i.e., courses numbered 700 or above. Each graduate student is expected to complete satisfactorily an adult teaching practicum under supervision.

**Career Opportunities:**

Students who earn the degree in Adult Education may look forward to careers in such endeavors as Agricultural Extension, Adult Basic Education, Community College Education, Religious Education, Law Enforcement, Continuing Education, Nursing, and Community School Education.

**CURRICULUM FOR MAJOR IN ADULT EDUCATION**

<b>Course</b>	<b>Description</b>	<b>Credit</b>
340-651	Introduction to Adult Education	3
340-652	Methods in Adult Education	3
340-653	Adult Development and Learning	3
340-654	Gerontology	3
340-700	History and Philosophy of Adult/Continuing Education	3
340-701	Organization, Administration and Supervision of Adult Education Programs	3
340-702	Practicum in Teaching Adults	3
340-703	Seminar on Contemporary Issues in Adult/Continuing Education	1
340-704	Independent Study	2
340-705	Thesis Research (Optional)	3
311-641	Teaching the Culturally Disadvantaged Learner	3
311-690	The Community College and Post Secondary Education	3
311-710	Methods and Techniques of Research	3
311-790	Seminar in Education Problems	3
110-601	Adult Education in Occupational Education	3
SSS-669	Small Groups	3
340-650	Special Problems in Adult Education	1-4

## DIRECTORY OF FACULTY AND COURSES

### Adult Education

Sampson Buie, B.S., North Carolina Agricultural and Technical State University; M.S., The University of North Carolina at Greensboro; Ed.D., The University of North Carolina at Greensboro, Assistant Professor.

Benjamin W. Harris, B.S., North Carolina Agricultural and Technical State University; M.S., Pennsylvania State University; Ed.D., North Carolina State University, Professor.

### Courses:

- 340-650 Special Problems in Adult Education
- 340-651 Introduction to Adult Education
- 340-652 Methods in Adult Education
- 340-653 Adult Development and Learning
- 340-654 Gerontology
- 340-700 History and Philosophy of Adult/Continuing Education
- 340-701 Organization, Administration and Supervision of Adult Education Programs
- 340-702 Practicum in Teaching Adults
- 340-703 Seminar on Contemporary Issues in Adult/Continuing Education
- 340-704 Independent Study
- 340-705 Thesis Research (Optional)

## AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

**Richard D. Robbins, Chairperson**  
**Room 251, Carver Hall**

The department of Agricultural Economics and Rural Sociology offers a program of study leading toward the Master of Science degree in Agricultural Economics. The program prepares students for careers in teaching, research, extension, agriculture-related business, and government service, as well as for further graduate studies for a terminal degree. Students may select a program track for concentration in Agricultural Marketing, Production Economics or Rural Development.

A minimum of 30 semester hours is required for the M.S. degree in Agricultural Economics, including 12 semester hours of "core" courses in advanced economics, a course in statistics and research methods, 9 semester hours of courses in the selected program track, and 6 semester hours of thesis work. In addition, the successful completion and defense of a thesis and a comprehensive examination are required.

The general requirements for admission are an undergraduate degree from an accredited institution, with a grade point average of 3.00 (on a 4.00 point scale) and a basic preparation in Agricultural Economics, Economics, Mathematics and Statistics. An undergraduate major in Agricultural Economics, Economics, Agribusiness or Business Administration, with preparation in Economics/Statistics generally will provide an acceptable preparation. Applicants who do not meet the requirements will be considered on an individual basis.

The student pursuing the Master of Science degree in Agricultural Economics is required to complete a common core of courses consisting of:

Ag. Econ 710	Advanced Micro Economics	3 Semester Hours
Ag. Econ 720	Advanced Macro Economics	3 Semester Hours
Ag. Econ 705	Advanced Statistics	3 Semester Hours
Ag. Econ 725	Research Methods	3 Semester Hours

In addition, the following courses are required by areas of concentration as specified:

### Rural Development

Core Courses		12 Semester Hours
Ag. Econ 750	Social Organization of Agriculture	3 Semester Hours
Ag. Econ 730	Rural Development	3 Semester Hours
Ag. Econ 732	Agricultural Policy	3 Semester Hours
Elective		3 Semester Hours
Thesis		6 Semester Hours
<i>Total</i>		30 Semester Hours



## **Agricultural Marketing**

Core Courses	12 Semester Hours
Ag. Econ 734 Agricultural Marketing	3 Semester Hours
Ag. Econ 656 Agricultural Price Analysis	3 Semester Hours
Ag. Econ 736 Marketing Problems and Issues	3 Semester Hours
Elective	3 Semester Hours
Thesis	6 Semester Hours
<i>Total</i>	30 Semester Hours

## **Production Economics**

Core Courses	12 Semester Hours
Ag. Econ 740 Production Economics	3 Semester Hours
Ag. Econ 732 Agricultural Policy	3 Semester Hours
Ag. Econ 708 Econometrics	3 Semester Hours
Elective	3 Semester Hours
Thesis	6 Semester Hours
<i>Total</i>	30 Semester Hours

## **DIRECTORY OF FACULTY**

### **Agricultural Economics and Rural Sociology**

Sidney H. Evans, B.S., Virginia State College; M.S., Iowa State University; Ph.D., Ohio State University; Professor.

Robin Henning, B.S., M.S., Ohio State University; Ph.D., Cornell University, Adjunct Assistant Professor.

Hari P. Marhatta, B. Comm., Tribhuvan University; M. Comm., Tribhuvan University; M.S., North Dakota State University; Ph.D., University of Connecticut; Associate Professor.

Donald R. McDowell, B.S., Southern University A. and M.; M.S. University of Illinois, Adjunct Instructor.

Richard D. Robbins, B.S. North Carolina A&T State University; M.S., Ph.D., North Carolina State University, Professor.

Alton Thompson, B.S., North Carolina Central University; M.S., Ph.D., Ohio State University, Adjunct Assistant Professor.

Albert O. Yeboah, B.S., University of Ghana; M.S. University of Guelph; M.A., Ph.D., University of Wisconsin; Adjunct Assistant Professor.

Anthony K. Yeboah, B.S., University of Science and Technology; M.S., Ph.D., Iowa State University, Adjunct Assistant Professor.

## **COURSES IN AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY**

<b>Course</b>	<b>Description</b>	<b>Credit</b>
150-650.	Human Resource Development	3
150-656.	Agricultural Price Analysis	3
150-705.	Econometrics	3
150-710.	Micro Economics	3
150-720.	Macro Economics	3
150-725.	Research Methods in Agricultural Economics	3
150-730.	Rural Development	3
150-732.	Agricultural Policy	3
150-734.	Agricultural Marketing	3
150-735.	Economic Development	3
150-736.	Agricultural Marketing Problems and Issues	3
150-738.	International Economics	3
150-740.	Production Economics	3
150-750.	Social Organization of Agriculture	3
150-798.	Thesis Research I	3
150-799.	Thesis Research II	3

## **AGRICULTURAL EDUCATION AND EXTENSION**

**A.P. Bell, Chairperson**

**Office: 242 Carver Hall**

The Department of Agricultural Education and Extension offers a program leading to the Master of Science Degree. The programs are designed to meet the needs of individual students and emphasize the professional workers in related areas with educational responsibilities. They provide advanced preparation for employment in administration, supervision, teacher education, and research in agricultural education and related fields.

### **Degree Offered**

Agricultural Education — M.S.

### **General Program Requirements**

Admission of students to the Master's Degree Program in Agricultural Education is based on the general admission requirements of the Graduate School. The candidate must have a Baccalaureate Degree from an accredited undergraduate institution. He/she must have a minimum of 18 credits in professional education or certification as a teacher of agricultural education or equivalent professional experiences. Failure to meet any of these criteria may necessitate rejection of the application or requirement of additional undergraduate work.

### **Departmental Requirements**

A minimum of 33 semester hours is required for completion of the graduate degree. The degree is not conferred for a mere collection of credits. A well-balanced, unified, and complete program of study will be required. A student may meet the degree requirements by either full-time or part-time enrollment and by attendance in any combination of terms.

The student may follow a thesis or non-thesis program. Those candidates who do not write a thesis must present a suitable investigative paper. Its nature and content will be determined by the department.

Courses in the major and minor areas will be selected on the basis of the individual's needs and interests. To qualify for the graduate certificate to teach in the public schools of North Carolina the candidate should complete 18 semester credits in subject matter agriculture. The candidate may concentrate in one subject matter area.

Other requirements include: Graduate Record Examination (Aptitude Test and Advanced Test in Education), 3.0 grade point average for all graduate courses, and Final Comprehensive Examination in Agricultural Education.

### **Career Opportunities**

The Graduate Program in Agricultural Education provides advanced preparation for employment in administration, supervision, teaching in schools and colleges, agricultural extension, business and industry, and research in agricultural education and related fields.

### **Directory of Faculty and Courses**

Arthur P. Bell, B.S., North Carolina A&T State University; M.S. & Ed.D., The Pennsylvania State University; Professor

Willie T. Ellis, B.S., M.S., North Carolina A&T State University; Ph.D., Cornell University, Professor

William E. Reed, B.S., Southern University; M.S., Iowa State University; Ph.D., Cornell University, Professor

Isaac C. Rogers, B.S., Hampton Institute; M.S., North Carolina A&T State University; Ed.D., The University of Sarasota; Adjunct Associate Professor

### **Courses**

110-601 Adult Education in Vocational and Extension Education

110-603 Problem Teaching in Vocational and Extension Education

110-604 Public Relations in Vocational Agriculture

110-605 Guidance and Group Instruction in Vocational Education

110-606 Cooperative Work-Study Programs  
110-607 Environmental Education  
110-608 Agricultural Extension Organization and Methods  
110-609 Community Analysis and Rural Life  
110-664 Occupational Exploration for Middle Grades  
110-665 Occupational Exploration in the Middle Grades — Agricultural Occupations  
110-700 Seminar in Agricultural Education and Extension  
110-702 Methods and Techniques of Public Relations  
110-703 Scientific Methods in Research  
110-704 History and Philosophy of Vocational Education  
110-705 Recent Developments and Trends in Agricultural Education and Extension  
110-706 Comparative Education in Agriculture  
110-707 Issues in Community Development and Adult Education  
110-750 Community Problems  
110-752 Administration and Supervision  
110-753 Program Planning  
110-754 History of Agricultural Education  
110-760 Thesis Research in Agricultural Education

**ANIMAL SCIENCE DEPARTMENT**  
**George A. Johnson, Chairperson**  
**Room 101, Animal Science Building**

*Courses offered for advanced undergraduate and graduate*

**Animal Science**

120-611 Principles of Animal Nutrition  
120-613 Livestock and Meat Evaluation  
120-614 Animal Breeding  
120-615 Selection of Meat and Meat Products  
120-617 Physiology of Reproduction of Farm Animals  
120-618 Seminar in Animal Science  
120-619 Special Problems in Livestock Management  
120-713 Advanced Livestock Production

**Dairy Science**

120-629 Special Problems in Dairy Management

**Poultry Science**

120-657 Poultry Anatomy and Physiology  
120-659 Special Problems in Poultry  
120-750 Poultry Research

**Laboratory Animal Science**

120-660 Special Problems in Specimen Preparation  
120-661 Special Problems in Electron & Light Microscopy  
120-662 Special Problems in Radiology  
120-663 Special Problems in Tissue Culture & Histochemistry  
120-664 Special Problems in Radio-Immunology, Radio-Isotopes and Tracer Techniques

**Dairy Science**

120-604 Dairy Seminar I (Formerly Dairy Husb. 2374)  
120-605 Dairy Seminar II

**ART**  
**LeRoy F. Holmes, Chairperson**  
**Office: Frazier Hall**

The Graduate School through the Department of Art prepares personnel at the graduate level by offering the Master's degree in Education with a concentration in art. Specifically the Department of Art seeks to prepare personnel by providing knowledge and competencies needed in planning, organizing, and supervising various aspects of the public school art program.

**Degrees Offered**

Art, Secondary Education — M.S.

**General Program Requirements**

The admission of students to the graduate program in the Department of Art is based upon general admission requirements of the University.

**Departmental Requirements**

In addition to the general requirements specified in the description of the degree program in Education, a student wishing to be accepted as a candidate for the degree, Master of Science in Education with a concentration in art, must hold or be qualified to hold a "Class A" teaching certificate in art. The areas covered should be: painting, ceramics or sculpture, design, art history, and crafts. Each applicant for admission is required to submit a portfolio of his/her work.

A student who fails to meet these qualifications will be expected to satisfy these requirements by enrolling in appropriate undergraduate courses before beginning his/her graduate studies in art.

**Requirements For The M.S. Degree in Education (Concentration in Art)**

Minimum requirements for the M.S. degree in Education with a concentration in art; 30 Semester Hours.

- I. *Education* — (6 Semester Hours)
  - A. Education 701 (Philosophy of Education): 3 Semester Hours
  - B. Education 722 (Curriculum in Secondary School): 3 Semester Hours
- II. *Art* — (9 Semester Hours)
  - A. Art 720 (Methods of Criticism): 3 Semester Hours
  - B. Art 721 (Research and Analysis): 3 Semester Hours
  - C. Art 722 (Seminar in Art Education): 3 Semester Hours
- III. *Other Requirements*
  - A. Electives (6 Semester Hours in Art, Education, or related fields)
  - B. Additional 9 Semester Hours from:
    1. Art 603 — Studio Techniques — 3 Semester Hours
    2. Art 604 — Ceramics Workshop — 3 Semester Hours
    3. Art 605 — Printmaking — 3 Semester Hours
    4. Art 606 — Sculpture — 3 Semester Hours
    5. Art 607 — Project Seminar — 2 Semester Hours
    6. Art 608 — Arts and Crafts — 3 Semester Hours

**Career Opportunities**

The program offered by the Department of Art prepares competent personnel for careers in the areas of teaching art, art research, creative productions, and various administrative positions in the visual arts.

**Directory of Faculty and Courses**

LeRoy F. Holmes, Jr., A.B., Howard University; A.M., Harvard University; Associate Professor

Theresa A. McGeady, A.B., Immaculata College; M.A., M.F.A., University of Notre Dame; Ph.D., Ohio University; Associate Professor

James E. McCoy, B.S., North Carolina College; M.A., Columbia University; Assistant Professor  
 Stephanie A. Santmyers, B.F.A., Alfred University; M.S., Illinois State University; Assistant Professor  
 Henry E. Sumpter, B.S., North Carolina Agricultural and Technical State University; M.F.A., University of North Carolina at Greensboro; Visiting Lecturer

### **Courses**

211-600 Public School Art  
 211-602 Seminar in Art History  
 211-603 Studio Techniques  
 211-604 Ceramics Workshops  
 211-605 Printmaking  
 211-606 Sculpture  
 211-607 Project Seminar  
 211-608 Arts and Crafts  
 211-720 Methods of Criticism, Interpretation, and Research  
 211-721 Research and Analysis  
 211-722 Seminar in Art Education

### **BIOLOGY**

**Arthur Hicks, Chairperson**  
**Office: 102 Barnes Hall**

The Department of Biology's program is designed to produce investigators and teachers who can define, experimentally research, and communicate fundamental problems associated with the development of biological systems. Further, the program of study leading to the Master's degree is designed to broaden the studies of biology majors who intend to pursue additional study at the graduate level.

### **Degrees Offered**

Biology — M.S.  
 Biology — M.S., Secondary Education

### **General Program Requirements**

The admission of students to the graduate degree programs in the Department of Biology is based upon the general admission requirements of the University.

### **Departmental Requirements — Biology Major**

In addition to the general requirements specified below, a student wishing to be accepted as a candidate for the degree, Master of Science in Biology, must have completed, on the undergraduate level, chemistry through organic, calculus, or at least a math course containing some calculus, one year of physics, and a course in cellular or molecular biology. Some graduate students may be accepted with the provision that they complete some or all of these courses before acceptance to candidacy. The student is *advised to read the Graduate Catalog very carefully for any additional Graduate School or departmental requirements.*

### **Required Courses (30 semester hours, including thesis research)**

Biology	663 Cytology (3)
	860 Parasitology (3)
	669 Recent Advances in Cell Biology (3)
	743 Developmental Plant Morphology (3)
Chemistry	651 General Biochemistry (5)
Biology	701 Biology Seminar (1)
	702 Biology Seminar (1)
	862 Research in Botany (6)
	or
	863 Research in Zoology (6)

Hours needed to complete the 30 semester hours required may be taken from the following courses:

Biology	666	Experimental Embryology (3)
	742	Physiology of Vascular Plants (3)
	700	Environmental Biology (3)
	769	Cellular Physiology (4)
	861	Advanced Genetics (3)
	703	Experimental Methods in Biology (3)

NOTE: *On some occasions substitutions may be made in the second half of this list in order to meet specific needs and/or interests of the graduate student or department (reference full course list).*

### Other Requirements

1. Filing for and completion of Qualifying Essay — (a requirement of the Graduate School)
2. GRE (Aptitude Test and Advanced Test in Biology) Scores must be submitted to the Graduate School Office before admission to the final examination can be granted
3. Satisfactory completion of an examination in a foreign language
4. One academic year of residence at A & T
5. 3.0 grade point average for all graduate courses
6. Participation in the Departmental Seminar Series
7. Final comprehensive examination in Biology
8. Satisfactory presentation and defense of thesis

## SUGGESTED CURRICULUM GUIDE FOR A MAJOR IN BIOLOGY (Pre-professional)

### FIRST YEAR

First Semester		Second Semester	
Bio. 669 Recent Adv. in Cell Biology	(3)	Bio. 663 Cytology	(3)
Bio. 743 Dev. Plant Morphology	(3)	Bio. 860 Parasitology	(3)
Bio. 701 Bio. Seminar	(1)	Bio. 702 Bio. Seminar	(1)
Bio. 703 Exp. Methods in Biology	(3)	Chem. 651 General Biochem.	(5)
Elective			
10 (+ elective)		12	

### SECOND YEAR

Summer or First Semester		First Semester or Second Semester	
Bio. 862 Research in Botany	(3)	Bio. 862 Research in Botany	(3)
or		or	
Bio. 863 Research in Zoology	(3)	Bio. 863 Research in Zoology	(3)
Elective (Optional)		Elective (Optional)	
3 (+ elective)		3 (+ elective)	

### Teaching Major in Biology

In addition to the general requirements specified below, a student wishing to be accepted as a candidate for the degree, Master of Science in Education with concentration in Biology must have completed, on the undergraduate level, chemistry through organic, a math course which includes some calculus and one year of college physics.

### Required Courses, M.S. in Education, Concentration in Biology

#### Required Courses in Biology: *Non-thesis Option (30 semester hours)*

Biology	661	Mammalian Biology (3)
	662	Biology of Sex (3)
	663	Cytology (3)
	700	Environmental Biology (3)
	765	Introductory Experimental Zoology (3)



NOTE: 760 Projects in Biology (3) and  
701/702 Seminar in Biology (2) may be substituted  
for Biology 766

Six semester hours of electives in education, biology, or subjects related to biology.

**Required Courses in Biology: Thesis Option (30 semester hours)**

Biology 661 Mammalian Biology (3)  
662 Biology of Sex (3)  
663 Cytology (3)  
700 Environmental Biology (3)  
765 Introductory Experimental Zoology (3)  
862 Research in Botany (3) or  
863 Research in Zoology (3)

Three hours of electives in Education, Biology, or related fields  
Thesis

**Required Courses in Education: Non-thesis Option (30 semester hours)**

1. Research
2. The Nature of the Learner and the Learning Process
3. Current Critical Issues in American Education
4. Historical, Philosophical and Sociological Foundations of Education
5. Curriculum, Supervision, etc.

**Other Requirements**

1. Students in a non-thesis program may take either Education 790 (Seminar) or a seminar in the area of concentration. Students in a thesis program may take Education 791 (Thesis) or a thesis research course offered in the area of concentration. In all instances, the decision is to be made in consultation with the advisor.
2. Graduate Record Examination (Aptitude Test and Advanced Test in area of concentration).
3. 3.0 grade point average for all graduate courses
4. Final comprehensive examination in Education and area of concentration
5. Must hold or be qualified to hold a Class A teaching certificate in Biology

**SUGGESTED CURRICULUM GUIDE FOR A TEACHING MAJOR IN BIOLOGY**

<b>Non-Thesis</b>			
<b>FIRST YEAR</b>			
<b>First Semester</b>		<b>Second Semester</b>	
Bio. 661 Mammalian Bio.	(3)	Bio. 663 Cytology	(3)
Bio. 662 Biology of Sex	(3)	Bio. 765 Intro. Experiment. Zoo	(3)
Bio. 700 Environmental Bio.	(3)	Bio. 766 Invert. Bio. For Teach.	(3)
Bio. 701 Bio. Seminar	(1)	Bio. 702 Bio. Seminar	(1)
Education	(3)	Education	(3)
	13		13
<b>Summer</b>			
Bio. Elective			
Education Elective			
Education 790 (3) (if required)			

## Thesis FIRST YEAR

First Semester		Second Semester	
Bio. 661 Mammalian Bio.	(3)	Bio. 663 Cytology	(3)
Bio. 662 Bio. of Sex	(3)	Bio. 765 Intro. Exp. Zoology	(3)
Bio. 700 Environ. Bio.	(3)	Education or	(3)
Bio. 701 Bio. Sem.	(1)	Biology Elective	(3)
	10		9

## SECOND YEAR

### Summer or First Semester

Bio. 862 Research in Botany	(3)
or	
Bio. 863 Research in Zoology	(3)
Elective (Optional)	
	3 (+ elective)

### Directory of Faculty and Courses

David W. Aldridge, B.S., M.S., University of Texas, Arlington; Ph.D., Syracuse University; Assistant Professor

Jerry Bennett, B.S., Tougaloo College; M.S., Atlanta University; Ph.D., Iowa State University; Associate Professor

A. James Hicks, B.S., Tougaloo College; Ph.D., University of Illinois, Urbana; St. Louis; Professor

Alfred Hill, Jr., B.S., Prairie View College; M.S., Colorado State University, Ph.D., Kansas State University, Professor

Thomas L. Jordan, B.A., Rockhurst College; M.S., Ph.D., University of Wisconsin, Madison; Washington-Seattle; Assistant Professor

Eugene Marrow, B.S., A&T State University; M.S., Ph.D., Catholic University of America; Professor

Theodora Joan Robinson, B.S., Federal City College/UDC., M.S., Ph.D., Howard University; and National Institutes of Health; Assistant Professor

Alphonso R. Vick, A.B., Johnson C. Smith University; M.S., North Carolina Central University; M.A., University of Michigan; Ph.D., Syracuse University; Professor

Joseph J. White, B.S., M.S., North Carolina College at Durham; Ph.D., University of Illinois, Urbana; Professor

James A. Williams, A.B., Talladega College; M.S., Atlanta University; Ph.D., Brown University; Professor

## CHEMISTRY

**Walter G. Wright, Chairperson**  
**Office: Room 116, Hines Hall**

The objectives of the Graduate Division in Chemistry are to provide the theoretical and experimental training experiences which are necessary for those students who are pursuing a Master of Science degree in Chemistry. The Department also offers special courses which may be used for teacher renewal certificates.

### Degrees Offered

1. Master of Science Degree in Chemistry
2. Master of Science in Education with concentration in chemistry

### General Requirements

Admission to the Graduate School under one of the following options:

1. Unconditional admission
2. Provisional admission
3. Special student



## Departmental Requirements

Admission to a degree program requires the following:

1. Baccalaureate degree from an accredited undergraduate institution
2. An undergraduate major in chemistry which includes one year of physical chemistry and one year of differential and integral calculus.

## Requirements for a Degree

The Master of Science degree in Chemistry has two options:

1. Thirty semester hours including a thesis
2. Non-thesis option requires thirty semester hours of course work.

Master of Science degree in Education requires the following courses: Chemistry 611, 722, 743, 732 and 701.

In addition, five semester hours in chemistry are required including a special problems course in analytical, inorganic, organic or Physical chemistry, and two semester hours of electives.

A thesis in Chemistry or Education is also required.

## Directory of Faculty

Walter G. Wright, B.S., M.S., North Carolina Central University; Ph.D., New York University; Professor, Chairman

Richard Bennett, B.S., Morehouse College; Ph.D., University of California at Santa Barbara; Professor

Evans Booker, B.S., Saint Augustine College; M.S., Tuskegee Institute; Associate Professor

Naïter Chopra, B.Sc. Hons., M.Sc. Hons., Ph.D., University of Dublin; Professor

William DeLauder, B.S., Morgan State University; Ph.D., Wayne State University; Professor, Dean, School of Arts and Sciences

Etta Gravely, B.S., Howard University; M.S., North Carolina A&T State; Ed.D., UNC-Greensboro; Assistant Professor

Vallie Guthrie, B.S., North Carolina A&T State University; M.A., Fisk University; Ed.D., American University; Associate Professor

Claude N. Lamb, B.S., Mount Union College; M.S., North Carolina Central University; Ph.D., Howard University; Assistant Professor

Arthur Stevens, B.S., Langston University; M.S., Oklahoma University; Associate Professor

Alex Williamson, B.S., Jackson State; Ph.D., University of Illinois; Assistant Professor

Jothi Ramasamy, B.Sc., Annamalai University, Cdm., India; Ph.D., Kansas State University, Assistant Professor

## COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

Course	Description	Credit
223-610	Inorganic Synthesis	2
223-611	Advanced Inorganic	4
223-621	Intermediate Organic Chemistry	3
223-624	Qualitative Organic Chemistry	3
223-631	Electroanalytical Chemistry	3
223-641	Radiochemistry	3
223-642	Radioisotope Techniques and Application	2
223-643	Introduction to Quantum Mechanics	4
223-651	General Biochemistry	5

### Graduate Students Only (Inorganic)

223-711 Structural Inorganic Chemistry 2

223-716 Selected Topics in Inorganic Chemistry 2

### (Organic)

223-721 Elements of Organic Chemistry 3

223-722 Advanced Organic Chemistry 4

223-723 Organic Chemistry 2

223-726	Selected Topics in Organic Chemistry	2
223-727	Organic Preparations (Biochemistry)	1-2
223-756	Selected Topics in Biochemistry (Analytical Chemistry)	2
223-731	Modern Analytical Chemistry	3
223-732	Advanced Analytical Chemistry	4
223-736	Selected Topics in Analytical Chemistry (Physical Chemistry)	2
223-741	Principles of Physical Chemistry I	4
223-742	Principles of Physical Chemistry II	4
223-743	Chemical Thermodynamics	4
223-744	Chemical Spectroscopy	3
223-746	Selected Topics in Physical Chemistry	2
223-748	Collaid Chemistry	2
223-749	Chemical Kinetics	

### Research and Special Topics

223-701	Seminar	1
223-702	Chemical Research	2-5
223-715	Special Problems in Inorganic Chemistry	2-4
223-725	Special Problems in Organic Chemistry	2-4
223-735	Special Problems in Analytical Chemistry	2-4
223-745	Special Problems in Physical Chemistry	2-4
223-755	Special Problems in Biochemistry	2-4

### Chemical Instructions

223-763	Selected Topics in Chemistry INSTRUCTION I	6
223-764	Selected Topics in Chemistry INSTRUCTION II	6
223-765	Special Problems in Chemistry INSTRUCTION I	3
223-766	Special Problems in Chemistry INSTRUCTION II	3
223-767	Special Problems in Chemistry INSTRUCTION III	3
223-768	Special Problems in Chemistry IV	3

### Thesis Research

233-799	Thesis Research	3
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## ECONOMICS

Basil Coley, Chairperson

Office: 325 Merrick

### COURSES OFFERED TO ADVANCED UNDERGRADUATES AND GRADUATES

Course	Description	Credit
531-601	Economic Understanding	3
531-602	Manpower Problems and Prospects	3
531-603	Manpower Planning	3
531-604	Economic Evaluation Methods	3
531-610	Consumer Economics	3
531-615	Economic Political and Social Aspects of the Black Experience	3

### COURSES OFFERED TO GRADUATE STUDENTS

531-701	Labor and Industrial Relations	3
531-705	Government Economic Problems	3
531-710	Economic Development and Resource Use	3
531-720	Development of Economic Systems	3

**EDUCATIONAL MEDIA**  
**Tommie M. Young, Chairperson**  
**Office: 101 Crosby Hall**

The Program in Educational Media provides an integrated curriculum of audiovisual education, library science, and instructional television in the preparation of Media Coordinators and allied personnel to serve learning needs and instructional programs in school media centers, junior and senior college learning resources complexes, business, industry, and health service agencies.

**Degrees Offered**

Education, Educational Media — M.S.

**General Program Requirements**

Admission to the Graduate School of the University is prerequisite to admission to the Department as a Media Major.

**Departmental Requirements**

**Media Major** — The major in Educational Media must complete a minimum of 30 semester hours. Eighteen to twenty-one of these hours are to be completed in Educational Media. Additionally, majors seeking the Graduate Certificate approved by the North Carolina State Department of Public Instruction are to select twelve hours of course work at the 700 level in the areas of: behavioral and humanities studies, relevant theory, and research. All majors complete the 700 level Internship and Seminar in Educational Media. While 30 semester hours are required to complete the Program, students are encouraged to strengthen the professional preparation through the selection of appropriate electives in Media.

**Media Minor** — (Associate Media Coordinator) The Associate Media Coordinator credentials approved by the State Department of Public Instruction will terminate in 1986. Students enrolled in this phase of the Program may utilize these courses at the Media Minor. The Associate Media requirements include completion of 12-15 hours in media and 3-6 hours in relevant theory and behavioral and humanities studies. The Media Minor is required to complete the Media courses only.

**Media Electives** — Students preparing for careers in teaching, supervision, administration and technical fields will find media courses especially helpful in aiding in program design, development and communication.

**Career Opportunities**

The media program at North Carolina A&T provides a variety of activities in preparing professional media personnel for positions in a myriad of agencies and services. Students have the opportunity to meet in-service media specialists who speak at Media Seminars and share experiences and prospects for employment. Professional workshops that bring new ideas, technology, and personalities to the campus support the instructional program and enhance the student's potentials for employment.

Over 1,200 public school positions in North Carolina require media personnel. Health service agencies, public communication agencies, personal training programs, junior and senior colleges and universities are among the many potential employers of well-prepared media specialists.

**SUGGESTED CURRICULUM FOR MEDIA MAJOR (MEDIA COORDINATOR)**  
**One Year Curriculum**

**Fall**

602	Utilization of Education Media	3
603	Production of Instructional Materials	3
601	Reference Materials and Methods	3
†	Media elective optional	

(9)

### Spring

600	Organization of Media Collections	3
604	Administration of Educational Media	3
607	Book Selection and Related Materials for Young People	3
	or	
606	Developmental Media for Children	3
†	Media elective optional	(9)

### Summer I

‡701	Philosophy of Education	3
§	Cognate Course	3
		(6)

### Summer II

‡755	Supervision of Instruction	3
703	Educational Media Internship and Seminar	3
		(6)

† Media elective option. It is recommended that Media Majors elect courses in the area of instructional development and educational computing to support the media preparation.

‡ Courses to satisfy behavioral and humanities studies may be taken from a range of offerings.

§ This cognate course may be selected from a discipline relevant to the student's needs and interest.

### Directory of Faculty and Courses

Tommie M. Young, B.A., Tennessee State University, M.A.L.S., Peabody-Vanderbilt University, Ph.D., Duke University, Professor

Valena Lee, B.A., St. Augustine College, M.S., M.L.S., Indiana University, Assistant Professor

Marvin Duncan, B.S., N.C. Central University, Ph.D., University of Michigan, Visiting Professor

Richard Edwards, A.S., Southern Union Junior College, B.A., Auburn University, M.M.A., University of South Carolina, Adjunct Instructor

Patricia Emery, B.S., Winston-Salem State University, M.S., N.C. A&T State University, Visiting Instructor

William Peeler, B.S., M.S., N.C. A&T State University, Visiting Technician

## CORE CURRICULUM

### Advanced Undergraduate and Graduate Courses

350-603	Production of Instructional Materials
350-602	Utilization of Educational Media Concentration
350-600	Organization of Media Collections
350-601	Reference Materials
350-604	Administration of Educational Media
350-605	Systems Approach and Curriculum
350-606	Developmental Media for Children (Children's Literature)
350-607	Book Selection and Related Materials for Young People
350-608	Programming for Instructional Radio and Television
350-609	Production for Instructional Radio and Television
350-610	Broadcasting for Instructional Radio and Television

### Graduate Courses

350-700	Programmed Instruction
350-701	Media Retrieval Systems
350-702	Workshop in Educational Media
350-703	Research in Educational Media and Internship

- 350-706 Media in Special Education and Reading
- 350-711 Advanced Information Services
- 350-713 Computers in Education
- 350-715 Advanced Production in Instructional Radio and Television
- 350-717 Media Services to Business and Industry

## **DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND GUIDANCE**

**Wyatt D. Kirk, Chairperson**

**Office: 212 Hodgkin Hall**

### **Objectives**

The objectives of the Department of Educational Psychology and Guidance are to prepare individuals for positions in Counseling and Guidance in both educational and non-educational settings and to strengthen and improve the practitioner's professional skills in the area of human services. The program includes courses in theories and procedures, theoretical and practical examination of human development and changes, techniques oriented courses, and a heavy emphasis in supervised practice. Graduates of the program are prepared to work in a variety of counseling settings, middle and secondary schools, junior colleges, and private agencies.

### **Degrees Offered**

Counselor Education — M.S.

Student Personnel Worker or Agency Counselor — M.S.

Human Resource Concentration — M.S.

### **General Program Requirements**

Following acceptance by the School of Graduate Studies, the Department of Educational Psychology and Guidance will accept students once they have completed nine hours of course work, at which time they will be evaluated, also, based upon their undergraduate grade point average, and the Department Faculty recommendation process.

Also, after acceptance by the Graduate School (not the department), each student indicating an interest in Educational Psychology and Guidance will be assigned an advisor who will assist in constructing a degree program consistent with the student's vocational goal and educational interest. Program development must be completed before evaluation for departmental acceptance at the end of nine hours.

### **Departmental Requirement**

Counselor Education Majors — the major in Counselor Education curriculum must complete 36 semester hours of graduate courses. The prerequisites for admission to the program are: 1) Introduction to Guidance and/or its equivalency, and 2) a course in Educational Statistics or Test Measurements. A minimum grade of "B" must be achieved in the curriculum. This program is designed for the individual who seeks a School Counselor's Certificate and the Master's degree.

Student Personnel Worker or Agency Counselor — the major in Student Personnel Worker or Agency curriculum must complete 36 semester hours of graduate courses. The prerequisites for admission to the program are: 1) Introduction to Guidance, 2) Personnel Management. A minimum grade of "B" must be achieved in the curriculum. This program is designed for the individual who seeks a School Counselor's Certificate and the Master's degree. Also, this program is for students who are interested in a non-certification program and/or interested in professional counseling career in an agency setting and the Master's degree.

Human Resources Concentration — the major in the Human Resources Concentration must complete 36 semester hours of graduate courses. The prerequisites for admission to the program are: 1) Elementary Statistics or Test and Measurements, 2) Industrial Psychology 445 and 3) Personnel Management 522.

## Accreditation

All education programs are accredited by the National Council for Accreditation of Teacher Education and approved by the North Carolina State Department of Public Instruction.

## Career Opportunities

Traditionally, students receiving the Master's degree from Counseling and Guidance have found jobs in school settings (middle and secondary), junior colleges, public agencies (family services, youth services, welfare departments, and state agencies), and private agencies. Presently, and additionally, career opportunities will include opportunities in the human service and training areas, industry and government or the local, state, and national level.

### SEQUENTIAL (SUGGESTED) CURRICULUM ORDER FOR EDUCATIONAL PSYCHOLOGY AND GUIDANCE MAJOR

#### COUNSELOR EDUCATION

##### Master of Science

###### FIRST YEAR

First Semester			Second Semester		
320-600	Introduction to Guidance	3	311-436	Tests and measurements	3
	Technical Core	3		Technical Core	3
320-623	Personality Development	<u>3</u>	320-706	Organ. Adm. Guide. Serv.	<u>3</u>
	<i>Total Credits</i>	9		<i>Total Credits</i>	9

###### SECOND YEAR

Third Semester			Fourth Semester		
320-714	Internship in Guidance	3	320-716	Techniques of Indv. Anal.	3
	Elective Core	3		Elective Core	3
320-718	Introduction to Counseling	<u>3</u>	320-720	Prin. & Dynm. of Gr. Couns.	<u>3</u>
	<i>Total Credits</i>	9		<i>Total Credits</i>	9

###### THIRD YEAR

Fifth Semester*		
320-717	Education/Occupational Education	3
320-726	Educational Psychology	3
320-730	Guidance Practicum	<u>3</u>
	<i>Total Credits</i>	9

\* Comprehensive Examination in the 5th Semester.

### SEQUENTIAL (SUGGESTED) CURRICULUM ORDER FOR EDUCATIONAL PSYCHOLOGY AND GUIDANCE MAJOR

#### STUDENT PERSONNEL WORKER OR AGENCY COUNSELOR

##### Master of Science

###### FIRST YEAR

First Semester			Second Semester		
320-600	Introduction to Guidance	3	320-522	Personnel Management	3
311-436	Tests and Measurements	3	320-707	Research Seminar	3
	Technical Core	<u>3</u>		Technical Core	<u>3</u>
	<i>Total Credits</i>	9		<i>Total Credits</i>	9



## SECOND YEAR

Third Semester			Fourth Semester		
320-623	Personalty Development	3	320-717	Edu. Occu. Information	3
320-716	Techniques of Indv. Anal.	3	320-718	Introduction to Counseling	3
	Technical Core	<u>3</u>		Elective Core	<u>3</u>
	<i>Total Credits</i>	9		<i>Total Credits</i>	9

## THIRD YEAR

Fifth Semester*		
320-720	Principals & Dynamics of Group Counseling	3
320-730	Guidance Practicum	3
	Elective Core	<u>3</u>
	<i>Total Credits</i>	9

\* *Comprehensive Examination in the 5th Semester.*

## SEQUENTIAL (SUGGESTED) CURRICULUM ORDER FOR EDUCATIONAL PSYCHOLOGY AND GUIDANCE MAJOR

### HUMAN RESOURCE CONCENTRATION

#### Master of Science

### FIRST YEAR

First Semester			Second Semester		
311-436	Tests and Measurements	3	220-445	Industrial Psychology	3
320-600	Introduction to Guidance	3	520-522	Business Admintration	3
	Technical Core	<u>3</u>	320-623	Personality Development	<u>3</u>
	<i>Total Credits</i>	9		<i>Total Credits</i>	9

## SECOND YEAR

Third Semester			Fourth Semester		
320-707	Research Seminar	3	320-716	Techniques of Indv. Anal.	3
320-717	Edu. Occu. Information	3	320-718	Introduction to Counseling	3
	Technical Core	<u>3</u>		Elective Core	<u>3</u>
	<i>Total Credits</i>	9		<i>Total Credits</i>	9

## THIRD YEAR

Fifth Semester*		
320-720	Principles & Dynamics of Group Counseling	3
320-725	Manpower Internship†	3
	Elective Core	<u>3</u>
	<i>Total Credits</i>	9

\* *Comprehensive Examination in the 5th Semester.*

† *Manpower Internship may be taken between 4th and 5th Semesters.*

### Directory of Faculty and Courses

Wyatt D. Kirk, Associate Professor of Educational Psychology and Guidance; B.S., M.S., Ed.D., Western Michigan University; Associate Professor and Chairperson  
 Harold L. Lanier, Instructor of Educational Psychology and Guidance; B.S., M.S., North Carolina A&T State University; Instructor

Aurelia G. Mazyck, Associate Professor of Educational Psychology and Guidance; B.S., Howard University; M.S., New York University; Ph.D., The University of North Carolina at Greensboro; Associate Professor

Myrtle B. Sampson, Associate Professor of Educational Psychology and Guidance; B.S., M.L.S., North Carolina Central University; M.A., University of Michigan at Ann Arbor; M.Ed., Ed.D., University of North Carolina at Greensboro; Ph.D., Heed University; Associate Professor

Jane H. Walter, Assistant Professor of Educational Psychology and Guidance; B.A., Wake Forest University; M.Ed., University of North Carolina at Chapel Hill; Post Master's Counseling, University of Delaware; Ed.D., Virginia Polytechnic Institute and State University; Assistant Professor

<b>Course</b>	<b>Description</b>	<b>Credit</b>
320-435	Educational Psychology	3
320-600	Introduction to Guidance	3
320-623	Personality Development	3
320-662	Mental Deficiency	3
320-706	Organization and Administration Guidance Services	3
320-707	Research Seminar	3
320-714	Internship in Guidance	3
320-715	Measurement for Guidance	3
320-716	Techniques of Individual Analysis	3
320-717	Educational Occupational Information	3
320-718	Introduction to Counseling	3
320-719	Case Studies in Counseling	3
320-720	Principles and Dynamics of Group Counseling	3
320-721	Independent Studies	3
320-722	Career Education and Vocational Development Theories	3
320-723	Student Personnel Services in Post-Secondary Education	3
320-724	Advanced Counseling Theories, Strategies and Techniques	3
320-725	Human Resource Internship	3
320-726	Educational Psychology	3
320-727	Child Growth and Development	3
320-728	Measurement and Evaluation	3
320-729	Mental Hygiene for Teachers	3
320-730	Counseling Practicum	3

## **ENGINEERING**

**William J. Craft**

Associate Dean of the School of Engineering

Coordinator for the Master of Science in Engineering Degree Program

**William J. Streat, Jr.**

Chairman, Architectural Engineering

**Samuel G. White, Jr.**

Chairman, Electrical Engineering

**Arup K. Mallik**

Chairman, Industrial Engineering

**Tony C. Min**

Chairman, Mechanical Engineering

## **THE MASTER OF SCIENCE IN ENGINEERING DEGREE PROGRAM**

The School of Graduate Studies offers a program of study leading to the Master of Science in Engineering that involves all engineering areas. Students may obtain the M.S.E. degree either with or without a thesis. For those students who elect the thesis option, faculty

expertise and research are generally available in a variety of disciplines in support of topics of mutual interest. Because the departments of Electrical Engineering, Industrial Engineering, and Mechanical Engineering have departmental Master of Science programs, with thesis options, it is likely that the M.S.E. thesis option will be of interest either to 1) graduates of our Architectural Engineering baccalaureate program with an interest in structures or 2) graduate students who wish to participate in a thesis topic that is interdisciplinary in nature requiring expertise in two or more departments. There are many additional thesis topics in a variety of areas under Electrical, Industrial and Mechanical Engineering which are listed separately.

Students may also elect the coursework only option which includes structured related topics under the M.S.E. program. Other relevant engineering masters level courses in the three departmental listings are also available to M.S.E. students. Many courses are offered during the evening, providing practicing engineers and students who work the opportunity to complete a degree program at the masters level.

## **Degree Offered**

Master of Science in Engineering

## **General Program Requirements**

*Regular Admission* to the Master of Science in Engineering Program is granted to graduates of ABET (formerly ECPD) accredited engineering programs who have attained a minimum of 2.6/4.0 Grade Point average on their overall undergraduate program of study. Two other categories of admission may also be invoked on a case-by-case basis. Persons may be admitted provisionally to the M.S.E. program if any of the following conditions apply:

1. The undergraduate degree is not from an ABET accredited program in engineering
2. The undergraduate degree is not in engineering but is in a closely related curriculum with a substantial engineering science content
3. Any deficiencies revealed in the undergraduate transcript may be removed by the inclusion of no more than 12 semester credit hours of appropriate undergraduate course content not for graduate credit
4. The grade point average is below that required for regular admission but there is evidence of successful completion of the M.S.E. degree.

Any provisionally admitted student must earn a minimum of a 3.0 grade point average on his graduate work through the semester that his ninth semester graduate course credit occurs. In addition, a "B" grade point average must be earned on all non-credit undergraduate courses if any were required as a condition of admission. In addition to these provisions, other conditions may be imposed on a case-by-case basis as approved by the Graduate School.

Students who hold an undergraduate degree but suffer from course deficiencies exceeding 12 semester credits can be considered for special student status — undergraduate. Persons with massive undergraduate engineering and related deficiencies even though they hold an undergraduate degree are asked to apply as transfer students to the appropriate undergraduate engineering curriculum.

Other general program requirements include admission to candidacy and the satisfactory completion of a final comprehensive examination. The format description of this examination is provided in detail under departmental requirements. Thesis option students are expected to follow reasonable guidelines in their field of study as approved by the Graduate School Dean.

## **Departmental Requirements**

Upon admission to graduate study, the Dean of the graduate school assigns an initial academic advisor. With the help of the initial advisor, the student selects a permanent academic advisor. The course of study must have the approval of the academic advisor. It is designed to be consistent with the student's engineering interests at the advanced level and his interest in either a thesis or non-thesis option. The permanent advisor should become the thesis advisor in the case of the thesis option student. The thesis advisor should select at least two persons competent to serve on the thesis committee to evaluate thesis progress and

to participate in the oral thesis defense and comprehensive examination.

The minimum credit requirements for a Master of Science in Engineering degree are thirty (30) semester credits for students who elect to take the thesis option. This includes six (6) credits of thesis. The minimum requirement is thirty-three (33) semester credits for non-thesis option students. In either option, at least twenty (20) credits are required from within engineering. At least one half of all courses must be at the 700 level unless explicitly excluded by the Graduate School Dean. M.S.E. candidates who elect the non-thesis option must pass a written final comprehensive examination. The advisor coordinates the examination for the student and three to five examiners of which the advisor may be one. Typically the examination lasts at least six (6) hours over a one week period. The student must satisfy the majority of examiners to pass.

M.S.E. candidates who elect the thesis option face an oral examination scheduled by the thesis advisor after the thesis research has been approved for final typing by the thesis committee. In the examination, the student must satisfy his committee on questions relating to his thesis or coursework. An affirmative vote by the majority of the committee is normally composed of from 3 to 5 persons including the advisor. Up to 2 members can be external to the University.

**Accreditation**

The Master of Science in Engineering degree program is supported by the administration and faculty of the four departments where undergraduate engineering degree programs are accredited by the Accreditation Board for Engineering and Technology, Inc.

**Career Opportunities**

The holder of the Master of Science in Engineering degree is typically employed in an engineering or management position within government and industry. The M.S.E. degree, in particular the thesis option, is a good background for persons wishing to enroll in a Ph.D. program in engineering.

**Suggested Curriculum Guide**

The curriculum is determined by the student and his/her advisor according to interest and degree requirements. The courses that follow address only structures topics because topics and courses in other program areas are already listed under Electrical, Industrial or Mechanical Engineering.

**Directory of Faculty and Courses**

- Elias Abu-Saba, Associate Professor of Architectural Engineering; Ph.D., Virginia Polytechnic Institute and State University; P.E.
- Ronnie Bailey, Assistant Professor of Architectural Engineering; M.S., University of Wisconsin.
- Walter Blue, Assistant Professor of Architectural Engineering; B.Arch., North Carolina State University; AIA.
- Wesley C. Clark, Associate Professor of Architectural Engineering; Ph.D., Oklahoma State University.
- William A. Streat, Jr., Professor of Architectural Engineering; S.M., Massachusetts Institute of Technology; AIA.
- Reginald Whitsett, Associate Professor of Architectural Engineering; M.Arch., North Carolina State University.

Course	Description	Credit (lec.-lab.)
400-628	Foundation Engineering	3 (2-2)
400-635	Structural Steel Design	3 (3-0)
400-644	Matrix Analysis of Structures	3 (2-2)
400-652	Theory of Plates and Shells	3 (3-0)
400-660	Selected Topics in Engineering	Variable
400-666	Special Project	Variable
400-700	Advanced Reinforced Concrete Design	3 (2-2)
400-701	Advanced Structural Analysis	3 (3-0)

400-719	Design of Buildings for Extreme Wind and Earthquake Forces	3 (3-0)
400-755	Plastic Analysis and Design	3 (3-0)
400-759	Prestressed Concrete Theory and Design	3 (3-0)
400-767	Structural Dynamics	3 (3-0)
400-777	Thesis	Variable
400-779	Advanced Structural Steel Design	3 (2-2)
400-788	Research	Variable
400-789	Special Topics	Variable

## **ELECTRICAL ENGINEERING DEPARTMENT**

**Samuel G. White, Jr., Chairperson**

**Office: 114 Graham Hall**

### **Objective**

The objective of the Electrical Engineering Department is to emphasize advance studies in solid state electronics, microelectronics, computer engineering, communications and power systems. The program is designed to provide graduate level education for advanced professional practice or further graduate study.

### **Degree Offered**

Master of Science in Electrical Engineering

### **General Program Requirements**

The admission of students to the graduate degree program in the Department of Electrical Engineering is based upon a baccalaureate degree in Electrical Engineering from an accredited institution. A grade point average of 3.0 out of 4.0 is required for unconditional admission to the M.S.E.E. program. Provisional admission may be granted to a candidate who possesses an accredited undergraduate degree in engineering or in a closely related discipline with an overall grade point of at least 2.6 out of 4.0, and has no background deficiencies requiring more than twelve semester hours at the undergraduate level.

### **Departmental Requirements**

Two option are offered in the Master of Science in Electrical Engineering program. A minimum of 30 semester hours, including 6 hours of thesis are required for the "thesis option," and a minimum of 33 semester hours, including 3 hours of special projects, are required for the "project option."

In order to graduate, students are required to maintain a grade point average of 3.0 in all graduate (600 and 700) level course work. A minimum of 50% of these courses must be at the 700 level.

### **Directory of Electrical Engineering Graduate Faculty**

Ali Abul-Fadl, Associate Professor of Electrical Engineering, B.S., M.S., Ph.D., University of Idaho

Ward J. Collis, Associate Professor of Electrical Engineering, B.S., M.S., Northwestern University, Ph.D., Ohio State University

Harold L. Martin, Associate Professor of Electrical Engineering, B.S., M.S., North Carolina A&T State University, Ph.D., Virginia Polytechnic Institute & State University

David E. Olson, Associate Professor of Electrical Engineering, B.S., Michigan Technical University; Ph.D., University of Utah

E.E. Sherrod, Assistant Professor of Electrical Engineering, B.S., North Carolina A&T State University, M.S., Newark College of Engineering

Elias K. Stefanakos, Professor of Electrical Engineering, B.S., M.S., Ph.D., Washington State University

Samuel G. White, Jr., Associate Professor of Electrical Engineering, B.S., M.S., Tuskegee Institute, Ph.D., University of Illinois at Urbana-Champaign

Leo Williams, Jr., Professor of Electrical Engineering, B.S., M.S., University of Illinois

Chung Yu, Professor of Electrical Engineering, B.Eng., McGill University, M.S., Ph.D., Ohio State University



## Summary of Course Offerings

Courses numbered 600-699 are open to qualified seniors and graduate students. Graduate credit is available to graduate students. Courses numbered 700 and above are only open to qualified graduate students.

Course	Description	Credit (lec.-lab.)
420-602	Semiconductor Theory & Devices	3 (3-0)
420-614	Integrated Circuit Fabrication Methods	3 (3-0)
420-615	Silicon Device Fabrication Lab.	2 (0-2)
420-616	Introduction to Microprocessors	2 (2-0)
420-617	Microprocessor Hardware Design	3 (3-0)
420-619	Microprocessor Laboratory	2 (0-2)
420-627	Switching Theory	3 (3-0)
420-629	VLSI Design	3 (3-0)
420-633	Digital Electronics	3 (3-0)
420-636	Computer Methods in Power Systems	3 (3-0)
420-637	Power Systems Analysis I	3 (3-0)
420-638	Power Systems Analysis II	3 (3-0)
420-642	Solid State Energy Conversion	3 (3-0)
420-649	Modulation Theory & Communication Systems	3 (3-0)
420-650	Digital Signal Processing I	3 (3-0)
420-651	Digital Signal Processing Lab.	2 (0-2)
420-656	Probability & Random Processing	3 (3-0)
420-660	Selected Topics in Engineering	Var. (1-3)
420-666	Special Projects	Var. (1-3)
420-668	Automatic Contro. Theory	3 (3-0)
420-672	Analog Electronics	3 (3-0)
420-674	Network Synthesis	3 (3-0)
420-678	Projects in Electronic Network & Systems	2 (0-2)
420-705	Solid State Devices	3 (3-0)
420-706	Solid State Lab Techniques	3 (3-0)
420-707	Physical Tensor Properties of Crystals	3 (3-0)
420-727	Switching and Finite Automata Theory	3 (3-0)
420-729	Digital Systems	3 (3-0)
420-740	Photovoltaic Power Generation	3 (3-0)
420-746	Electromagnetic Wave Theory	3 (3-0)
420-748	Statistical Communication Theory	3 (3-0)
420-750	Digital Signal Processing II	3 (3-0)
420-756	Optical Electronics	3 (3-0)
420-760	Theory of Linear Systems	3 (3-0)
420-762	Network Matrices and Graphs	3 (3-0)
420-777	Thesis	Var. (1-6)
420-788	Research	Var. (1-3)
420-789	Special Topics	Var. (1-3)

## ELEMENTARY EDUCATION AND READING

Marian L. Vick, Chairperson

Office: 113 Hodgkin Hall

At the graduate level, the department offers curricula leading to the Master of Science degree in Early Childhood Education, Intermediate Education, Elementary Education (General) and Reading. The program aims to develop prospective teachers who will realize the importance of change, and the need for continued learning. All persons who guide the development of young children need an understanding of the child, his world, and the numerous forces that influence him, as well as the basic principles on which decisions regarding instruction and practice are based.



The graduate program in reading prepares teachers of reading for reading education at all levels as well as State Certification in reading.

### **Degrees Offered**

Early Childhood Education — M.S.  
Elementary Education (General) — M.S.  
Intermediate Education — M.S.  
Reading Education — M.S.  
Reading Education — State Certification

### **General Program Requirements**

Students must follow the general admission requirements for graduate studies. They must meet professional education requirements for a Class A graduate-level teaching certificate, and must also meet the requirements for admission to candidacy for a degree as stated in “Admission and Other Information.”

### **Departmental Requirements**

The major in Early Childhood Education, Intermediate Education, Elementary Education, and Reading must complete 30 semester hours of graduate-level courses for a graduate degree and at least 18 semester hours for certification in reading.

An overall grade point average of 3.0 must be maintained for the degree programs and for certification in reading.

A comprehensive examination is required for each of the degree programs as well as for certification in reading.

### **Accreditation**

All Teacher Education Programs are accredited by the National Council for Accreditation of Teacher Education and approved by the North Carolina State Department of Public Instruction.

### **Career Opportunities**

In addition to preparing teachers for K-3, intermediate, elementary and reading (K-12), a degree in these fields also provides for career opportunities in allied fields such as health, social service, child/family relations, communication arts and other diversified areas.

### **Reading Education Curriculum: 30 Semester Hours Required**

The Reading Education Curriculum has two distinct approaches to certification, namely Option I and Option II. Option I is for those students who wish to complete Class A or graduate level certification, while Option II is for those students desiring to complete a degree program in Reading. All courses listed below are 3 semester hours unless otherwise noted.

A. Option I: Requires 18 semester hours from the following.

Reading — 15 semester hours

- 310-630 Foundations in Reading
- 310-631 Word Recognition/Identification Skills
- 310-635 Reading Through the Primary Years
- 310-636 Reading in the Elementary Grades
- 310-637 Reading in the Secondary School
- 310-638 Classroom Diagnosis in Reading
- 310-639 Reading Practicum
- 310-640 Reading for the Atypical Learner
- 310-739 Reading in the Content Areas

The following courses shown in the list above are required for State Certification in reading, Class A or G: Education 630, 635, or 636 or 637, 638, 739.

Cognate Areas — 3 semester hours

- 350-706 Media in Special Education and Reading
- 212-626 Children's Literature
- 212-710 Language Arts for Elementary Teachers
- 212-754 History and Structure of the English Language

## Other Requirements

Overall grade point average of 3.0 for all graduate courses

### Comprehensive Examination

- B. Option 11: A total of 30 semester hours is required. This program leads to the Master of Science in Reading.

#### Reading — 18 semester hours

310-630 Foundations in Reading

310-631 Word Recognition/Identification Skills

310-635 Reading Through the Primary Years

310-636 Reading in the Elementary Grades

310-638 Diagnosis in Reading

310-639 Reading Practicum

310-640 Reading for the Atypical Learner

310-739 Reading in the Content Areas

310-741 Advantaged Diagnosis

310-742 Organization and Administration of Reading Programs

310-743 Advanced Practicum

310-744 Seminar and Research in Reading

#### Foundations of Education Courses — 6 semester hours required

311-701 Philosophy of Education (or)

311-703 Educational Sociology

311-625 Theory of American Public Education

311-720 Curriculum Development (or)

311-721 Curriculum in the Elementary School (or)

311-722 Curriculum in the Secondary School

320-726 Educational Psychology (or)

320-727 Child Growth and Development

311-711 Educational Statistics

#### Cognate Areas — 6 semester hours required

350-706 Media in Special Education and Reading

212-626 Children's Literature

212-710 Language Arts for Elementary Teachers

212-754 History and Structure of the English Language

If a student has already earned 18 semester hours in Reading at the Class A or graduate level for state certification purposes then he/she may elect additional hours necessary to complete requirements from the following courses with academic advisement.

#### Required Reading Courses for the M.S. Degree in Reading

310-630 Foundations in Reading (or)

310-740 Problems in the Improvement of Reading

310-635 Reading Through the Primary Years (or)

310-636 Reading in the Elementary Grades

310-637 Classroom Diagnosis in Reading (or)

310-741 Advanced Diagnosis in Reading

310-739 Reading in the Content Areas

310-742 Organization and Administration of Reading Programs

310-744 Seminar and Research in Reading

#### Cognate Areas

350-706 Media in Special Education and Reading

212-710 Language Arts for Elementary Teachers

212-754 History and Structure of the English Language

## **Elementary Education Curriculum (General): 30 Semester Hours Required**

### A. Non-Thesis Option

#### 1. Courses Required

- a. 311-790 Seminar in Educational Problems (after completion of 24 graduate semester hours)

- b. Three (3) semester hours are to be chosen from each of the following areas, making a total of 9 semester hours from those listed below:
  - (1) The nature of the learner and the learning process
    - 320-726 Education Psychology
    - 320-727 Child Growth and Development
    - 311-711 Educational Statistics
  - (2) Theoretical, historical, sociological, and philosophic bases for educational practices
    - 311-625 Theory of American Public Education
    - 311-626 History of American Education
    - 311-627 The Afro-American Experience in American Education
    - 311-628 Seminar and Practicum in Urban Education
    - 311-701 Philosophy of Education
    - 311-703 Educational Sociology
    - 311-780 Comparative Education
    - 311-781 Issues in Elementary Education
  - (3) Curriculum Development
    - 311-720 Curriculum Development
    - 310-721 Curriculum in the Elementary School
- c. Eighteen hours taken from English, reading, fine arts, health and physical education, mathematics, science, special education, and social studies, with emphasis on instructional areas most appropriate for general elementary education.

#### B. Thesis Option

##### 1. Courses Required

The program requirements for the thesis option are the same as those outlined above under Non-Thesis Option with the exception that the student pursuing the thesis program must take 311-791: Thesis Research instead of 311-790.

##### 2. Other Requirements

- a. Qualifying Examination
- b. Graduate Record Examination
- c. 3.0 grade point average for all graduate courses
- d. Master's Comprehensive Examination in Education
- e. Thesis Examination

### **Early Childhood Education Curriculum (Grades K-3): 30 Semester Hours Required**

#### A. Non-Thesis Option

##### 1. Courses Required

- a. 311-790 Seminar in Educational Problems (after completion of 24 graduate semester hours)
- b. Three (3) semester hours should be chosen from each of the following areas, making a total of 9 semester hours from those listed below:
  - (1) The nature of the learner and the learning process
    - 320-726 Educational Psychology
    - 320-727 Child Growth and Development
    - 311-711 Educational Statistics
  - (2) Theoretical, historical, sociological, and philosophic bases for educational practices
    - 311-625 Theory of American Public Education
    - 311-626 History of American Education
    - 311-627 The Afro-American Experience in American Education
    - 311-628 Seminar and Practicum in Urban Education
    - 311-701 Philosophy of Education
    - 311-703 Educational Sociology
    - 311-780 Comparative Education
    - 310-781 Issues in Elementary Education

- (3) Curriculum Development
      - 310-683 Curriculum in Early Childhood Education
      - 311-720 Curriculum Development
      - 310-721 Curriculum in the Elementary School
    - c. Twelve hours taken from English, reading, fine arts, health and physical education, mathematics, science, special education, and social studies, with emphasis on instructional areas most appropriate for early childhood education.
    - d. Six hours of electives
  - 2. Other Requirements
    - a. Qualifying Examination
    - b. Graduate Record Examination
    - c. 3.0 grade point average for all graduate courses
    - d. Master's Comprehensive Examination in Education
- B. Thesis Option
- 1. Courses Required
 

Program requirements for the thesis option are the same as those listed above under Non-Thesis Option with the exception that the thesis program must include 311-791: Thesis Research instead of 311-790.
  - 2. Other Requirements
    - a. Qualifying Examination
    - b. Graduate Record Examination
    - c. 3.0 grade point average for all graduate courses
    - d. Master's Comprehensive Examination in Education
    - e. Thesis Examination

### **Intermediate Education Curriculum (Grades 4-9): 30 Semester Hours Required**

#### **A. Non-Thesis Option**

- 1. Courses Required
  - a. 311-790 Seminar in Educational Problems (after completion of 24 graduate semester hours)
  - b. Three (3) semester hours are to be chosen from each of the following areas, making a total of 9 semester hours from those listed below:
    - (1) The nature of the learner and the learning process
      - 320-726 Education Psychology
      - 320-727 Child Growth and Development
      - 311-711 Educational Statistics
    - (2) Theoretical, historical, sociological, and philosophic bases for educational practices
      - 311-625 Theory of American Public Education
      - 311-626 History of American Education
      - 311-627 The Afro-American Experience in American Education
      - 311-628 Seminar and Practicum in Urban Education
      - 311-701 Philosophy of Education
      - 311-703 Educational Sociology
      - 311-780 Comparative Education
      - 310-781 Issues in Elementary Education
    - (3) Curriculum Development
      - 311-720 Curriculum Development
      - 311-721 Curriculum in the Elementary School
  - c. Eighteen hours could be chosen from the areas of English, reading, fine arts, health and physical education, mathematics, science, special education, and social studies, with emphasis on courses which apply most directly to the elementary school. It is suggested that the student select a concentration in not more than two of the instructional areas of the elementary school curriculum.

## 2. Other Requirements

- a. Qualifying Examination
- b. Graduate Record Examination
- c. Maintain a 3.0 grade point average for all graduate courses
- d. Master's Comprehensive Examination in Education

## B. Thesis Option

### 1. Courses Required

The student pursuing the thesis program should meet the same course requirements as those listed above under Non-Thesis Option except that he/she should take 311-791: Thesis Research instead of 311-790: Seminar in Educational Problems.

### 2. Other Requirements

- a. Qualifying Examination
- b. Graduate Record Examination
- c. Maintain a 3.0 grade point average for all graduate courses
- d. Master's Comprehensive Examination in Education
- e. Thesis Examination

## Directory of Faculty and Courses

Marian Lee Vick, B.S., Fayetteville State University, M.S., University of Michigan; C.A.G.S., Syracuse University; Ed.D., Duke University; Professor  
Gladys F. Blue, B.M., Willamette University; M.M., Eastman School of Music, University of Rochester; Ph.D., University of Akron; Associate Professor  
Morris C. Peterkin, B.S., Cheyney State College; M.S., Governors State University; M.Ed. Certificate, Temple University; Ph.D., University of Pittsburgh; Associate Professor  
Pamela I. Hunter, B.S., Livingstone College, M.Ed., University of North Carolina at Greensboro; Ph.D., Ohio State; Assistant Professor

## Course Description

310-630	Foundations in Reading
310-631	Word Recognition/Identification Skills
310-635	Teaching Reading Through the Primary Years
310-636	Methods and Materials in Teaching Reading in the Elementary School
310-637	Teaching Reading in the Secondary School
310-638	Classroom Diagnosis in Reading Instruction
310-639	Reading Practicum
310-640	Reading for the Atypical Learner
310-660	Introduction to Exceptional Children
310-661	Psychology of the Exceptional Child
310-662	Mental Deficiency
310-663	Measurement and Evaluation in Special Education
310-664	Materials, Methods and Problems in Teaching Mentally Retarded Children
310-665	Practicum in Special Education
310-683	Curriculum in Early Childhood
310-684	Methods in Early Childhood
310-721	Curriculum in the Elementary School
310-739	Reading in the Content Areas
310-740	Problems in the Improvement of Reading
310-741	Advanced Diagnosis in Reading Instruction
310-742	Organization and Administration of Reading Programs
310-743	Advanced Practicum in Reading
310-744	Seminar and Research in Reading
310-781	Issues in Elementary Education
310-783	Current Research in Elementary Education
310-E785	Independent Readings in Education I
310-E786	Independent Readings in Education II
310-E787	Independent Readings in Education III



**ENGLISH**  
**Jimmy L. Williams, Chairperson**  
**Office: 202 Crosby Hall**

### **Objectives**

The objectives of the English Department are to provide in-depth training in English-Education, English and Afro-American literature, folklore and language.

### **Degrees Offered**

English and Afro-American Literature — M.A.

English Education — M.S.

### **Requirements for Admission to the M.A. Program in English and Afro-American Literature and the M.S. Program in English Education**

All applicants to the M.A. program must have earned a bachelor's degree from a four-year college. Applicants must also have completed a minimum of twenty-four (24) undergraduate hours in English. The hours must include at least three semester hours of Shakespeare, three of American literature, three of English literature, three of world literature of contemporary literature, and three of advanced grammar and composition.

A student who fails to meet these qualifications will be expected to satisfy the requirements by enrolling in undergraduate courses before beginning graduate studies in English.

Application forms may be obtained from the office of the Graduate School or the English Department and must be completed and returned to the Graduate Office. Two (2) official transcripts of previous undergraduate or graduate records and three (3) letters of recommendation must be forwarded to the Graduate Office before action can be taken on the application. An applicant may be admitted to the program unconditionally, provisionally, or as a special student.

*Unconditional Admission.* To qualify for unconditional admission to the M.A. program, an applicant must have earned an overall average of 3.00 on a four-point system (or 2.00 on a three-point system) in undergraduate studies.

*Provisional Admission.* An applicant may be admitted to graduate studies on a provisional basis if (1) the record of undergraduate preparation reveals deficiencies that can be removed near the beginning of graduate study or (2) lacking the required grade point average for unconditional admission, the applicant may become eligible by successfully completing the first nine (9) hours of course work with a 3.00 or better average. A student provisionally admitted may also be required to pass examinations to demonstrate his knowledge in certain areas or to take special undergraduate courses to improve his background.

*Special Students.* Students not seeking the M.A. degree may be admitted in order to take courses for self-improvement or for renewal of teaching certificates. If the student subsequently wishes to pursue the M.A. program, he or she must request an evaluation of the work. Under no circumstances may the student apply toward a degree program more than twelve (12) hours earned as a special student.

### **M.A. and M.S. Degree Requirements**

Except for the foreign language requirement, the admission requirements are the same for the M.S. in Education-English as they are for the M.A. in English and Afro-American Literature.

*Total Hours Required.* The M.A. program consists of two distinct and parallel elements. The student may elect to take twenty-four (24) hours of course work and write a thesis for six (6) hours credit in order to satisfy the thirty-hour minimum requirement. The student may also elect not to write a thesis and take an additional six (6) hours of course work in order to satisfy the thirty-hour minimum requirement. Three courses are required: English 754 — History and Structure of the English Language, English 753 — Literary Research and Bibliography, and English 700 — Literary Analysis and Criticism. The student must take a minimum of twelve (12) hours and no more than a maximum of fifteen (15) hours in Afro-American Literature.



Approximately fifty percent of the courses offered each semester will be open only to graduate students. These courses are on the 700 level. All 600 level courses will be open to both undergraduate and graduate students.

**Grades Required.** Students in the M.A. program must maintain a 3.00 average in order to satisfy the grade requirements of the program. If a student receives a C or lower in more than two (2) courses, he or she will be dropped from the program.

**Amount of Credit Accepted for Transfer.** The Graduate School will accept six (6) semester hours of transfer credit from another institution for those students enrolled in degree programs.

**Other Requirements (Comprehensive and Thesis Examinations).** Students must pass a three (3) hour written comprehensive examination administered by the English Department. The comprehensive examination will cover only material to which the student has been exposed in course work at A. and T. The comprehensive may be taken twice. Those students who elect to write a thesis must meet the deadlines projected by the Graduate School in addition to standing a one-hour oral examination which constitutes a defense of the thesis. The defense may be attempted twice.

### **Career Opportunities**

Both the M.A. and M.S. degrees prepare students to pursue graduate study for the doctorate in English and related fields. The M.S. prepares one to teach on the secondary and college levels. The M.A. degree is designed primarily to prepare one for college teaching and for admission to doctoral programs.

### **Curriculum Guide for M.A. Degree**

**Non-Thesis Option:** 30 semester hours required

1. Required: English 700, 753, 754
2. Twelve (12) hrs. from: English 650, 652, 654, 656, 658, 660, 760, 762, 764, 766
3. Nine (9) hrs. from: English 603, 620, 628, 662, 702, 704, 720, 749, 750, 751, 752, 775, 770
4. Foreign Language: Demonstrated proficiency in French, Spanish, German or an approved substitute.

**Thesis Option:** 30 semester hours required

1. Required: English 700, 753, 754
2. Nine to twelve (9-12) hrs. from: English 650, 652, 654, 658, 660, 760, 762, 764, 766
3. Nine (9) hrs. from: English 603, 620, 628, 662, 702, 704, 720, 749, 750, 751, 752, 755, 770
4. Foreign Language: Demonstrated proficiency in French, Spanish German or an approved substitute.
5. Thesis Research: English 775, 3 semester hours

### **Curriculum Guide for M.S. Degree**

**Non-Thesis Option:** 30 semester hours required

In addition to the courses specified in the description of general requirements for a Master of Science in Education, the student must complete the following:

1. English 700, 753, 754
2. 15 semester hours selected from the following: English 603, 620, 628, 650, 652, 654, 656, 658, 660, 662, 702, 704, 749, 750, 751, 752, 755, 760, 762, 764, 766

**Thesis Option:** 30 semester hours required

In addition to the courses specified in the description of general requirements for a Master of Science in Education, the student must complete the following:

1. English 700, 753, 754
2. 12 semester hours selected from the following: 603, 620, 628, 650, 652, 654, 658, 660, 662, 702, 704, 720, 749, 750, 751, 752, 755, 760, 762, 764, 766, 770
3. Thesis Research: English 755, 3 semester hours

### **Directory of Faculty and Courses**

Jimmy L. Williams, B.A., Clark College; M.A., Washington University; Ph.D., Indiana University; Professor

Brian Benson, A.B., Guilford College; M.A., University of North Carolina at Greensboro; Ph.D., University of South Carolina; Professor

John Crawford, B.S., North Carolina A. and T. State University; M.S., University of Iowa; Ph.D., University of Colorado; Professor

Norman Jarrard, A.B., Salem College; M.A., University of North Carolina at Chapel Hill; Ph.D., University of Texas; Professor

Irma Cunningham, B.A., LeMoyne-Owen College; M.A., Indiana University; Ph.D., The University of Michigan; Associate Professor

Michael Greene, B.A., Duke University; M.A., Ph.D., Indiana University; Associate Professor

Robert Levine, B.A., Queens College of the City University of New York; M.A., Ph.D., Cornell University; Professor

Ethel Taylor, A.B., Spelman College; M.A., Atlanta University; Ph.D., Indiana University; Associate Professor

Sandra Alexander, B.S., North Carolina A. and T. State University; M.A., Harvard University; Ph.D., University of Pittsburgh; Associate Professor

Ernest Bradford, B.A., Morehouse College; B.D., Morehouse College; M.A., Ph.D., University of Nebraska; Assistant Professor

John Price, A.B., Stanford University; M.A., Ph.D., University of Virginia; Assistant Professor

### **Courses For Advanced Undergraduates and Graduates**

- 212-603 Introduction to Folklore
- 212-620 Elizabethan Drama
- 212-621 Grammar and Composition for Teachers
- 212-626 Children's Literature
- 212-627 Literature for Adolescents
- 212-628 The American Novel
- 212-650 Afro-American Folklore
- 212-652 Afro-American Drama
- 212-654 Afro-American Novel I
- 212-656 Afro-American Novel II
- 212-658 Afro-American Poetry I
- 212-660 Afro-American Poetry II
- 212-662 History of American Ideas

### **Graduate Courses, open only to graduate students**

- 212-700 Literary Analysis and Criticism
- 212-702 Milton
- 212-704 Eighteenth Century English Literature
- 212-710 Language Arts for Elementary Teachers I
- 212-711 Language Arts for Elementary Teachers II
- 212-720 Studies in American Literature
- 212-749 Romantic Prose and Poetry of England
- 212-750 Victorian Literature
- 212-751 Modern British and Continental Fiction
- 212-752 Restoration and 18th Century Drama
- 212-753 Literary Research and Bibliography
- 212-754 History and Structure of the English Language
- 212-755 Contemporary Practices in Grammar and Rhetoric
- 212-760 Non-Fiction by Afro-American Writers
- 212-762 Short Fiction by Afro-American Writers
- 212-764 Black Aesthetics
- 212-766 Seminar in Afro-American Literature and Language
- 212-770 Seminar
- 212-775 Thesis Research

**FOREIGN LANGUAGES**  
**Helen G. LeBlanc, Chairperson**  
**Office: 302 Crosby Hall**

**FRENCH**

**Courses Offered For Advanced Undergraduates and Graduates**

- 217-602 Problems and Trends in Foreign Languages (Formerly French 501, 2571)
- 217-603 Oral Course for Teachers of Foreign Languages (Formerly French 502)
- 217-606 Research in the Teaching of Foreign Languages (Formerly French 503, 2573)
- 217-607 French Literature of the Seventeenth Century (Formerly French 302, 2574)
- 217-608 French Literature in the Eighteenth Century (Formerly French 303, 2575)
- 217-609 French Literature of the Nineteenth Century (Formerly French 304, 2576)
- 217-610 The French Theatre (Formerly French 504, 2577)
- 217-612 The French Novel (Formerly French 505, 2578)
- 217-614 French Syntax (Formerly French 506, 2579)
- 217-616 Contemporary French Literature (Formerly French 305 and 2542, 2580)

**Graduate Courses, open only to graduate students**

- 217-720 Advanced Reading and Composition (Formerly 601, and 2580, 2585)
- 217-722 Romantic Movement in France (1820-1848) (Formerly 602 and 2581, 2856)
- 217-724 Seminar in Foreign Languages (Formerly 603 and 2582, 2587)
- 217-726 Contemporary Literary Criticism (Formerly 604 and 2583, 2588)
- 217-728 Independent Study in Foreign Languages (Formerly 258, 2589)

**HEALTH, PHYSICAL EDUCATION and RECREATION**

**Calvin Irvin, Acting Chairperson**  
**Office: Corbett Gymnasium**

**Objective**

The objective of the Department of Health, Physical Education and Recreation is to provide an opportunity for professionals in the discipline to pursue post baccalaureate experiences/degree.

**Degree Offered**

The Department offers a Master of Science degree in Education with a concentration in Health and Physical Education.

**General Program Requirements**

The admission of students to the graduate degree program of Physical Education is based upon the general admission requirements of the University.

**Departmental Requirements**

*Non-Thesis Option:* 30 Semester Hours Required

In addition to the courses specified in the description of general requirements for a Master of Science in Education, the student must complete the following:

1. Physical Education 785, 786, and 798
2. 9 Semester Hours in Physical Education Courses
3. 6 Semester Hours in Electives

*Thesis Option:* 30 Semester Hours

In addition to the courses specified in the description of general requirements for a Master of Science in Education, the student must complete the following:

1. Physical Education 785, 786, 798, and 799

2. 6 Additional Semester Hours in Physical Education courses
3. 6 Semester Hours in Electives

## Career Opportunities

A degree in this field provides content for students preparing for careers or who are already in the field of Health and Physical Education.

## For Advanced Undergraduates and Graduates

<i>Health Education</i>	<i>Credits</i>
330-651	3
330-652	3
<i>Physical Education</i>	
330-655	3
330-656	3
330-657	3
330-658	3
330-669	3
330-679	
<i>For Graduates Only</i>	
330-780	3
330-785	3
330-786	3
330-787	3
330-798	3

## Directory of Faculty and Courses

Dorothy J. Alston, B.S., North Carolina A. and T. State University; M.A., North Carolina Central University; Ed.D., University of North Carolina at Greensboro; Professor  
 Leonard Dudka, B.S., M.A., California State Polytechnic College; Ph.D., University of Illinois-Urbana; Professor  
 Calvin Irvin, B.S., University of Illinois, M.A., Columbia University; Associate Professor  
 Roy D. Moore, B.S., North Carolina Central University; M.S., Ph.D., University of Illinois; Professor  
 Bert C. Piggott, B.S., M.S., University of Illinois; Ed.D., University of North Carolina at Greensboro; Professor  
 Joseph Williams, B.S., North Carolina A. and T. State University; M.S., University of Michigan; Assistant Professor

## Courses

330-651	Personal, School and Community Health Problems
330-652	Methods and Materials in Health Education for Elementary School Teachers
330-655	Current Problems and Trends in Physical Education
330-656	Administration of Interscholastic and Intramural Athletics
330-657	Community Recreation
330-658	Current Theories and Practices of Teaching Sports
330-669	Physiology of Exercise
330-679	Prescribed Methods of Rehabilitating the Physically Handicapped
330-780	Organization and Administration of Health, Physical Education and Recreation in Elementary Schools
330-785	Research in Health, Physical Education and Recreation (Prerequisites: Successful completion of 330:785 and 330:786)
330-786	Scientific Foundations of Physical Education
330-787	Scientific Foundations of Physical Fitness
330-798	Seminar

**HISTORY**  
**Bertha H. Miller, Chairperson**  
**Office: 324 Gibbs Hall**

The School of Graduate Studies through the Department of History offers a Master of Science Degree in Education with a concentration in history or the social sciences. The objectives of the History Department are as follows: 1) to provide historical content for students preparing for careers in fields such as education, law, religion, journalism, history, and government service; 2) to provide a course of study leading to the Masters degree in Education with a concentration in history and/or the social sciences; 3) to provide graduate training for those students seeking doctoral degrees with a view towards becoming career historians and college/university teachers.

**Degrees Offered**

History, Secondary Education — M.S.

Social Science, Secondary Education — M.S.

**General Program Requirements**

In addition to the general requirements specified in the description of the degree program in Education, a student wishing to be accepted as a candidate for the degree of Master of Science in Education with a concentration in History or Social Science must hold or be qualified to hold a Class A teaching certificate in History or Social Science. If a person does not qualify for certification, appropriate undergraduate and graduate courses may be taken to correct this deficiency. All graduate students must complete a graduate course in methods of teaching the social sciences.

**Career Opportunities**

Degrees in these fields provide historical, geographical, and philosophical content for students preparing for careers in such fields as education, religion, journalism, history, and government service.

**Departmental Requirements**

To complete the requirements for the degree of Master of Science in Education with a concentration in History or Social Science, the student may elect the thesis option or the non-thesis option. A comprehensive examination is required in History or the Social Sciences as well as in Education. Students must maintain a grade point average of 3.00.

**History, Non-Thesis Option**

Thirty semester hours required in courses at the 600 level or above.

1. 21 semester hours in history (Political Science 645 and Political Science 730 are accepted for history credit).
2. 6 semester hours in education (including Education 725, and Education 701 or 625 or 703 or 720 or 722 or Psychology 726).
3. 3 semester hours in electives.

**History, Thesis Option**

Thirty semester hours required in courses at the 600 level or above including the thesis.

1. 15 semester hours in history.
2. 6 semester hours in education (including Education 725, and Education 701 and 625 or 703 or 720 or 722 or Psychology 726).
3. 6 semester hours thesis.
4. 3 semester hours in electives.

**Social Science, Non-Thesis Option**

Thirty semester hours required in courses at the 600 level or above.

1. 21 semester hours in social science courses.

2. 6 semester hours in education (including Education 725, and Education 701 or 625 or 703 or 720 or 722 or Psychology 726).
3. 3 semester hours in electives.

### **Social Science, Thesis Option**

Thirty semester hours required in courses at the 600 level or above including the thesis.

1. 15 semester hours in social science courses.
2. 6 semester hours in education (including Education 725, and Education 701 or 625 or 703 or 722 or Psychology 726).
3. 6 semester hours thesis.
4. 3 semester hours in electives.

### **Directory of Faculty and Courses**

Frenise A. Logan, A.B., Fisk University; M.A., Ph.D., Case Western Reserve University; Professor

Dorothy S. Mason, A.B., The University of North Carolina at Greensboro; M.A., University of Georgia; Ph.D., The University of North Carolina at Chapel Hill; Professor

James G. Nutsch, B.S., Kansas State University; M.A., Ph.D., University of Kansas; Professor

Peter V. Meyers, B.A., Wesleyan University; M.A., Ph.D., Rutgers University; Associate Professor

Bertha H. Miller, B.S., Hampton Institute; M.A., Case Western Reserve University; Ph.D., Duke University; Associate Professor

### **Courses**

- 233-600 The British Colonies and the American Revolution
- 233-603 The Civil War and Reconstruction
- 233-605 Seminar on the Soviet Union
- 233-606 United States History, 1900-1932
- 233-607 United States History, 1932-Present
- 233-615 Seminar in the History of Black America
- 233-616 Seminar in African History
- 233-617 Readings in African History
- 233-625 Seminar in Historiography and Historical Method
- 233-626 Revolutions in the Modern World
- 233-630 Seminar in European History, 1815-1914
- 233-631 Studies in Twentieth Century Europe, 1914 to the Present
- 233-633 Independent Study in History
- \* 237-645 American Foreign Policy — 1945 to Present

### **Geography**

- 233-640 Topics in Geography of Anglo-America
- 233-641 Topics in World Geography
- 233-650 Physical Geography I
- 233-651 Physical Geography II

### **History**

- 233-701 Recent United States Diplomatic History
- 233-712 The Black American in the Twentieth Century
- 233-730 Seminar in History
- 233-740 History, Social Sciences, and Contemporary World Problems
- 233-750 Thesis in History
- † 237-730 Constitutional Development Since 1865
- ‡ 311-725 Problems and Trends in Teaching the Social Sciences

\* Political Science 645 is accepted for history credit.

† Political Science 730 is accepted for history credit.

‡ Education 725 is required for graduate students.



**HOME ECONOMICS**  
**Harold E. Mazyck, Chairperson**  
**Office: Benbow Hall**

### **Home Economics**

The objectives of the Home Economics Department are:

1. To develop satisfying personal, group and family relationships as a basis for active participation in a democratic society.
2. To understand the enrichment of home and family living through the appreciation and use of art and advances in science and technology.
3. To develop an understanding and appreciation of varying cultural backgrounds.
4. To prepare the individual for gainful employment in one of the major areas of the profession.

### **Degree Offered**

Food and Nutrition — M.S.

### **General Program Requirements**

Admission of students to the graduate program in the Department of Home Economics is a baccalaureate degree from an accredited undergraduate institution and an overall grade point average of 2.6 in undergraduate studies.

### **Departmental Requirements**

The Department of Home Economics offers the Master of Science in Food and Nutrition. This program requires a minimum of 30 semester hours and has two options, Option A and Option B. All credentials of the students are subject to evaluation of the Graduate Faculty of the Department of Home Economics at least four (4) weeks prior to admission.

OPTION A is designed to prepare students for the advanced degree in Food and Nutrition and related areas, and careers in food research, nutrition, food testing, food demonstrating, clinical nutrition, dietetics, extension service and teaching. For admission to this program, applicants should have majored in one or more of the following areas: basic food, nutrition (human or animal), biochemistry, mathematics, biology, and physiology. Thesis is required.

The undergraduate program should have included one year of each of the following: general chemistry and organic chemistry. Qualified applicants should have at least one course in each of the following areas: quantitative analysis, biochemistry, basic nutrition, diet therapy, and food science (experimental cookery). Failure to meet any of the above requirements may necessitate taking of undergraduate courses to meet deficiencies. Admission to candidacy for the M.S. in Food and Nutrition requires the satisfactory completion of a qualifying examination in Food and Nutrition. This examination is in addition to the qualifying essay required by the Graduate School. (To be taken prior to the close of the first semester of entrance to the program.) Other requirements are the Graduate Record Examination, a final comprehensive examination in Food and Nutrition which is only taken if a student has maintained a 3.0 grade point average in the Graduate courses and work at the 600 level or above, and has completed the Departmental Qualifying Examination and Qualifying Essay Examination, a 3.0 grade point average overall for all graduate courses, and satisfactory presentation and defense of a thesis.

OPTION B is designed to prepare students for careers in applied nutrition. This program has two options, thesis and non-thesis. Students with a major interest in dietics, public service careers, anthropology, sociology, economics, education and teaching at any level from the kindergarten to the college may enter the program. Option B has the flexibility for students to write a thesis or to choose extra course work. Both opportunities have meaningful value in relation to students' interests, specialization, and career goals.

All students who have not had any courses in Food and Nutrition must take Home Economics 537, Review of Scientific Principles in Food and Nutrition. This course will count as a pre-requisite to Option B in such cases, and will be in addition to the 30 semester hours and may not serve as an elective. Both thesis and non-thesis program applicants may be requested to take a Diagnostic Test in Food and Nutrition to evaluate their strengths and weaknesses. This test must be taken prior to registration. The non-thesis program may require more course work. The

advisor should be consulted. Non-thesis programs must include Home Economics 745, Practicum in Food or Nutrition. Admission to candidacy for the M.S. in Food and Nutrition requires the satisfactory completion of a qualifying examination in Food and Nutrition. This examination is in addition to the qualifying essay required by the Graduate School. (To be taken prior to the close of the first semester of the student's entrance to the program.) Other requirements are the Graduate Record Examination, a final comprehensive examination in Food and Nutrition. This examination can be taken only if a student has maintained a 3.0 grade point average in the Graduate courses and work at the 600 level or above, and has completed the Departmental Qualifying Examination and the Qualifying Essay Examination. A 3.0 grade point average overall for all graduate courses, and satisfactory presentation and defense of thesis (if thesis is presented) is required.

### Career Opportunities

A degree in this area prepares students to enter careers in research, quality control, college and junior college teaching, industry (food science), clinical nutrition, dietetics, extension service and public service careers.

### Suggested Curriculum Guide for Option A — Food and Nutrition

A total of 17 semester hours to be selected from Food and Nutrition courses including:

Home Economics 730 — (prerequisite Home Economics 630)	5 credits
Home Economics 735 — (prerequisite Home Economics 236)	4 credits
Home Economics 736 — (prerequisite Home Economics 635)	4 credits

\* Prerequisite courses will not count in the 30 minimum required hours.

Electives to equal 10 semester hours to be selected across interdisciplinary areas, in consultation and with written approval of the advisor.

Suggested electives:

Biochemistry 651	5 credits
Mathematics 624	3 credits
Chemistry 642	2 credits
Zoology 664 or equivalent	3 credits
Poultry Science 659	3 credits
Animal Science 615	3 credits
Animal Science 713	3 credits
Home Economics 739 — Thesis	3 credits

### Suggested Curriculum Guide for Option B — Thesis

Required courses, 10 semester hours

Home Economics 736 or equivalent	4 credits
Home Economics 740	3 credits
Home Economics 742	3 credits

\* Prerequisite courses will not be counted in the 30 minimum required hours.

Home Economics 739 — Thesis	3 credits
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Eight (8) semester hours to be selected from the following Food and Nutrition courses:

Home Economics 734	3 credits
Home Economics 733	3 credits
Home Economics 744	2 credits
Home Economics 638	3 credits
Home Economics 641	3 credits

Electives to equal 9 semester hours to be selected to support the area of specialization.

Electives should be 600 and above level courses selected from the following disciplines.

Computer Science  
Home Economics Education  
Journalism  
Child Development  
Psychology  
Agricultural Education  
Sociology

## **Suggested Curriculum Guide for Option B — Non-Thesis**

Required courses, 13 semester hours

Home Economics 736	4 credits
Home Economics 740	3 credits
Home Economics 742	3 credits
Home Economics 745	3 credits

Fourteen (14) semester hours to be selected from the following Food and Nutrition courses:

Home Economics 734
Home Economics 733
Home Economics 744
Home Economics 638
Home Economics 641
Home Economics 730 without Lab
Home Economics 735 without Lab

Electives to equal 9 semester hours to be selected to support the area of specialization.

Electives should be 600 and above level courses selected from the following disciplines.

Journalsim  
Child Development  
Psychology  
Agricultural Education  
Sociology

North Carolina A&T State University and University of North Carolina at Greensboro share jointly a group of pre-planned professional experiences in clinical dietetics approved by the American Dietetics Association in conjunction with the Masters degree program in Food and Nutrition. The masters degree program for those students who have completed Plan IV, or who would qualify for completing Plan IV by taking the necessary courses in addition to master level work, could receive didactic and clinical experiences in dietetics, with emphasis in Management, Clinical and Community Dietetics. Students would qualify for membership in the American Dietetic Association and for writing of the registration examination for the Registered Dietitian. Students will complete 1000 hours of clinical experiences totaling a minimum of 24 weeks in clinical settings in addition to the regular masters degree program.

For further information contact the Chairman, Home Economics Department, North Carolina A&T State University, Greensboro, NC 27411.

## **Directory of Faculty and Courses**

Harold Mazzyk, B.S., South Carolina State College; M.A., New York University; Ph.D., The University of North Carolina at Greensboro; Professor

Ramona T. Clark, B.A.S.W., M.S.W., California State University; Ph.D., Oklahoma State University; Assistant Professor

Jane T. Walker, B.S., Appalachian State University; M.S., Virginia Polytechnic Institute and State University; Instructor

Seetha Ganapathy, B.S., University of Mysore; Ph.D., University of Bombay, Professor  
Sara H. James, B.S., M.S., Virginia State University; Assistant Professor

Mary D. Litchford, B.S., M.S., University of Tennessee at Knoxville; Lecturer

Bobby L. Medford, B.A., M.A., Guilford College; Ph.D., The University of North Carolina at Greensboro; Assistant Professor

Eva E. Moore, B.S., West Virginia State College; M.S., University of Illinois; Ph.D., The University of North Carolina at Greensboro; Professor

Rosa Siler Purcell, B.S., North Carolina A&T State University; M.Ed., Ed.D., University of Illinois; Adjunct Assistant Professor

Chung Woon Seo, B.S., M.S., Korea University; Ph.D., Florida State University; Professor

Anna A. Simkins, B.S., M.S., Pennsylvania State University; Ph.D., University of North Carolina at Greensboro, Associate Professor

Myrtle L. Smith, B.S., North Carolina Central University; M.S., Ph.D., Ohio State University; Professor

Eula King Vereen, R.D., B.S., Tennessee State University; M.S., The University of North Carolina at Greensboro, Assistant Professor

Katye G. Watson, B.S., North Carolina A&T State University; Certificate, Nursery Training School of Boston; M.Ed., Tufts University; Assistant Professor

### **Courses — Food and Nutrition**

- 170-630 Advanced Nutrition
- 170-631 Food Chemistry
- 170-632 Food and Nutrition in Early Childhood
- 170-635 Introduction to Research Methods in Food and Nutrition
- 170-636 Food Promotion
- 170-637 Special Problems in Food and Nutrition
- 170-638 Sensory Evaluation
- 170-641 Current Trends in Food Science
- 170-643 Food Preservation
- 170-645 Special Problems in Food Administration
- 170-646 Readings in Food Administration
- 170-647 Seminar in Food Administration
- 170-730 Nutrition in Health and Disease
- 170-733 Nutrition During the Growth and Development
- 170-734 Nutrition Education
- 170-735 Experimental Foods
- 170-736 Research Methods in Foods and Nutrition
- 170-739 Thesis Research
- 170-740 Community Nutrition
- 170-742 Cultural and Social Aspects of Food and Nutrition
- 170-744 Seminar in Food and Nutrition
- 170-745 Practicum in Food or Nutrition

### **Home Economics**

- 170-602 Adult Education in Home Economics
- 170-603 Special Problems in Home Economics I
- 170-604 Seminar in Home Economics Education
- 170-606 Cooperative Extension
- 170-607 Cooperative Extension Field Experience
- 170-608 Teaching Adults and Youth in Out-of-School Settings
- 170-614 Contemporary Issues in Home Economics
- 170-664 Occupational Exploration in Middle Grades
- 170-706 Special Problems in Home Economics II

### **Child Development**

- 170-609 Adulthood
- 170-610 Human Ecology of the Family
- 170-613 Substance Abuse
- 170-715 Special Problems in Child Development

### **Clothing, Textiles and Fashion Merchandising**

- 170-623 Textile Chemistry
- 170-624 Advanced Textiles
- 170-625 Experimental Clothing and Textiles
- 170-626 Tailoring

**INDUSTRIAL EDUCATION**  
**George C. Gail, Chairperson**  
**Office: Price 105**

**Objectives for Industrial Education Programs:**

1. To develop advanced competencies in organizing and utilizing technical education strategies methodologies.
2. To further develop understandings and applications of technical education objectives, principles, concepts, practices, and philosophies.
3. To further develop competencies in organizing, directing, and evaluating technical education programs, courses, and teaching-learning activities.
4. To develop proficiencies in utilizing technological-educational problem solving and research techniques.
5. To further develop depth and/or breadth in technological competencies.

**Degrees Offered**

Industrial Arts Education — M.S.

Vocational — Industrial Education — M.S.

**General Program Requirements**

A. Unconditional Admission for "G" Certificate in Industrial Education

1. Baccalaureate degree from accredited undergraduate institution.
2. Class A certificate in Industrial Arts or Vocational-Occupational Education.  
\*(See exception below for post-secondary and private industry majors in Technical Education.)
3. Satisfactory completion of all Graduate School requirements for admission to candidacy for a degree.
4. Failure to meet any of these criteria may necessitate rejection of the application of the requirement of additional undergraduate work.

B. Provisional Admission for "G" Certificate

Applicants who enter the Vocational-Industrial Education and desire "G" certificate must hold or be qualified to possess the Class A Certificate in Vocational-Industrial Education before being admitted to candidacy. Upon entering the Vocational-Industrial Option, students are advised of graduate and undergraduate course requirements necessary to qualify for specific North Carolina "A" and "G" vocational teaching or director certificates.

**Departmental Requirements**

**INDUSTRIAL ARTS EDUCATION MAJOR.** Masters degree candidates must complete a minimum of 30 semester hours of graduate level courses, which include a 12 semester hour concentration of Industrial Education courses leading to "G" certification in Industrial Arts teaching. Other course requirements must include 3 semester hours of each: Research Techniques, Curriculum, Student Evaluation, Research Seminar or Thesis, Education or Psychology, Electives. The grade point average in the graduate program must be 3.0 or better. (See certification note below.)

**VOCATIONAL-INDUSTRIAL EDUCATION MAJOR.** Masters degree candidates must complete a minimum of 30 semester hours of graduate level courses, which include a 12 semester hour concentration of Industrial Education courses leading to "G" certification for either Trade and Industrial teachers or Local Directors of Vocational Education. Other course requirements must include 3 semester hours of each: Research Techniques, Curriculum, Student or Program Evaluation, Research Seminar or Thesis, Education or Psychology, Electives. The grade point average in the graduate program must be 3.0 or better. (See certification note below.)

\*Persons with technical preparation and interest in post secondary education or technical training programs in private industry, which do not require teacher-certification by the State of North Carolina, may pursue a masters degree in Vocational-Industrial Education



Option, but will not be qualified to receive either “A” or “G” teaching certificates.  
 NOTE: Candidates pursuing Masters degrees in either Industrial Arts or Vocational-Industrial Education may also qualify for North Carolina certification in Industrial Cooperative Training or Middle Grades Occupational Exploration.

**Career Opportunities:**

Excellent employment opportunities exist for persons holding advanced degrees in all areas of Industrial Education. Public schools in North Carolina and elsewhere are in constant need of securing certified teachers, supervisors, and administrators for industrial programs.  
 Many career opportunities also exist for Industrial Education specialists in occupations which do not require state teacher certification. These persons are employed as teachers, training directors, supervisors, and managers in postsecondary schools and colleges or in the private sector of industry.

**INDUSTRIAL EDUCATION CURRICULUM**  
**Thesis and Non-Thesis Programs**

<b>Required Courses, Industrial Arts and Vocational-Industrial Education Curriculum</b>		<b>Sem. Hrs.</b>
.....		3
Industrial Education 662	Education 720	
Industrial Education 766	Education 722	
Evaluation .....		3
Industrial Education 765	Industrial Education 762	
Education or Psychology .....		3
Education 625	Psychology 661	
Education 660	Psychology 726	
Education 701	Psychology 727	
Research Techniques .....		3
Industrial Education 767	Education 710	
Research Seminar or Thesis .....		3
<i>Non-Thesis</i>		
Industrial Education 768	Education 790	
<i>Thesis</i>		
Industrial Education 769	Education 791	
		15
Elective .....		3

**Major Concentrations**

Industrial Arts Education .....		12
Industrial Education 616	Industrial Education 718	
Industrial Education 617	Industrial Education 719	
Industrial Education 618	Industrial Education 731	
Industrial Education 619	Industrial Education 762	
Industrial Education 620	Industrial Technology 651	
Industrial Education 635	Industrial Technology 673	
Industrial Education 664	Industrial Technology 674	
Industrial Education 665	Industrial Technology 735	
Industrial Education 666	Guidance 717	
Industrial Education 715		



# VOCATIONAL-INDUSTRIAL EDUCATION ..... 12

## OPTION I: Trade and Industrial Education

Industrial Education 660	Industrial Education 717
Industrial Education 661	Industrial Education 718
Industrial Education 663	Industrial Education 762
Industrial Education 664	Industrial Education 763
Industrial Education 665	Guidance 717
Educational Media .....	(3 Semester Hours Maximum)
Education 602	Education 605
Education 603	Education 700

## OPTION II: Vocational Education Director

Industrial Education 663	Education 761
Industrial Education 717	Education 763
Industrial Education 718	Education 792
Industrial Education 764	Economics 602
Education 605	Economics 603
Education 755	Economics 604

## \*OPTION III: Technical Education

Industrial Education 663	Industrial Education 764
Industrial Education 717	Education 690
Industrial Education 718	Education 766
Industrial Education 762	Education 777
Industrial Education 763	Technology 779
Educational Media .....	(3 Semester Hours Maximum)
Education 602	Education 605
Education 603	Education 700

\*NOTE: Graduates in the Vocational-Industrial Technical Education Option are not recommended for, or receive either Class "A" or "G" state teaching certificates.

•All courses to meet both degree and certification requirements must be selected with approval of Graduate Program Advisor.

## Directory of Faculty, Department of Industrial Education

Charles W. Pinckney, B.S., South Carolina State College; M.S., University of Illinois; D.Ed., Pennsylvania State University; Professor and Director, Division of Industrial Education and Technology

George C. Gail, B.S., A&T College, M.S., University of Minnesota; Associate Professor and Department Head

James F. Dawkins, B.S., A&T College; M.S., University of Pennsylvania; Associate Professor

James L. Jenkins, B.S., Hampton Institute; M.S., North Carolina A&T State College; Assistant Professor

## Department of Industrial Technology

Arlington W. Chisman, B.S., Virginia State College; M.Ed., Virginia State College; Ph.D., Ohio State University; Professor

Robert B. Pyle, B.A., Trenton State College; M.A., Trenton State College; Certificate, Newark State College; Ph.D., University of Pittsburgh; Professor

Edgar I. Farmer, B.S., Norfolk State College; M.A., Hampton Institute; D.Ed., Pennsylvania State University; Associate Professor

Thomas H. Avery, Certificate, Southeastern Signal Institute; B.S., Hampton Institute; M.S., A&T College; Assistant Professor

Marquis L. Cousins, B.S., A&T College; M.S., A&T College, Assistant Professor

## Courses in Industrial Education

### Courses for Advanced Undergraduate and Graduate Students

	Credit
361-616 Plastic Technology	3 (2-2)
361-617 General Crafts	3 (2-2)
361-618 Vocational Education for Special Needs Students	3 (3-0)

361-619	Industrial Arts Construction	3 (2-2)
361-620	Industrial Arts Manufacturing	3 (2-2)
361-630	Photography and Educational Media	3 (2-2)
361-635	Graphic Arts	3 (2-2)
361-660	Industrial Cooperative Programs	3 (3-0)
361-661	Organization of Related Study Materials	3 (3-0)
361-662	Industrial Course Construction	3 (3-0)
361-663	History and Philosophy of Industrial Education	3 (3-0)
361-664	Occupational Exploration for Middle Grades	3 (3-0)
361-665	Middle Grades Occupational Exploration — Industrial Occupations	3 (3-0)
361-666	Curriculum Modification for Vocational Special Needs Personnel	3 (3-0)
361-668	Independent Studies in Industrial Education	3 (3-0)

#### **Graduate Courses in Industrial Education**

361-715	Comprehensive General Shop	3 (2-2)
361-717	Industrial Education Problems I	3 (3-0)
361-718	Industrial Education Problems II	3 (3-0)
361-719	Advanced Furniture Design and Construction	3 (2-2)
361-731	Advanced Drafting Techniques	3 (2-2)
361-762	Evaluation of Vocational Education Programs	3 (3-0)
361-763	General Industrial Education Programs	3 (3-0)
361-764	Supervision and Administration of Industrial Education	3 (3-0)
361-765	Evaluation in Industrial Subjects	3 (3-0)
361-766	Curriculum Laboratory in Industrial Education	3 (3-0)
361-767	Research and Literature in Industrial Education	3 (3-0)
361-768	Industrial Education Seminar	3 (3-0)
361-769	Thesis Research in Industrial Education	3

### **INDUSTRIAL ENGINEERING**

**Arup Mallik, Chairperson**

**Office: 206 Graham Hall**

#### **Objectives for Industrial Engineering Programs:**

The Master of Science Program in Industrial Engineering is designed to meet the need for technical and/or managerial specialists in the Industrial Engineering area of concentration. At the same time, a general advanced level of Industrial Engineering Theory is attained by requiring each student to complete at least one graduate level course in three of the five program areas: Production Planning, Scheduling and Control, Engineering Economics and Management, Operations Research, Ergonomics, Systems Analysis and Design.

#### **Degree Offered**

Industrial Engineering — M.S.I.E.

#### **General Program Requirements**

The program is open to students with a bachelor's degree in a scientific discipline from an institution of recognized standing. Students desiring to enter the program who do not possess a bachelor's degree in a scientific discipline are required to complete with at least a "B" average a significant number of background courses in mathematics, physics and engineering science prior to admission to the graduate program. Students entering the program without a bachelor's degree in Industrial Engineering from an accredited department are required to remove all deficiencies in general professional prerequisites.

#### **Program Options and Degree Requirements**

The Master of Science in Industrial Engineering program consists of two distinct options — Thesis and Project. With the *Thesis Option*, 24 semester hours of course work is

required. The other six hours must consist of thesis work. These hours must be at the 600 and 700 level and a minimum of 50% of these credit hours must be at the 700 level. The *Project Option* consists of 30 semester hours of course work and 3 semester hours of special project work. These courses must be at the 600 and 700 level. A minimum of 50% of these courses must be at the 700 level. A student should submit a written thesis/project proposal before completion of 21 graduate credit hours. Before submitting the proposal, the student should form an advisory committee in consultation with the permanent advisor. In order to graduate, students are required to maintain a grade average of 3.0 in all graduate level course work.

### **Transfer of Credit**

Recommendations on transfer of up to six semester hours of graduate credit may be made to the Graduate School if it is not part of any prior undergraduate degree requirement and if in the opinion of the host department chairman, the coverage could adequately replace current graduate offerings in the student's curriculum. A minimum of three-fourths of the hours required for the degree must be earned in residence study at the university. No written comprehensive examination is required, instead an oral thesis or project defense is required.

### **Typical Plans of Study**

#### **Production Planning, Scheduling and Controlling Concentration**

- 430-650 Operations Research
- 430-640 Intermediate Engineering Economy
- 430-658 Project Management and Scheduling
- 430-615 Industrial Simulation
- 430-678 Engineering Management
- 430-718 Advanced Quality Control
- 430-716 Applied Regression Analysis
- 430-749 Inventory Systems Analysis and Design
- 430-777 Thesis or      430-788 Project and  
                                  430-664 Safety Engineering  
                                  430-733 Operations Research II

#### **Engineering Economics and Management**

- 430-640 Intermediate Engineering Economy
- 430-678 Engineering Management
- 430-649 A Survey of Operations Research Methodologies
- 430-664 Safety Engineering
- 430-730 Industrial Dynamics
- 430-658 Project Management and Scheduling
- 430-716 Applied Regression Analysis
- 430-777 Thesis or      430-788 Project and  
                                  430-626 Systems Analysis and Design  
                                  430-749 Inventory Systems Analysis and Design

#### **Operations Research and Statistics**

- 430-650 Operations Research
- 430-749 Inventory Systems Analysis and Design
- 430-662 Reliability
- 430-733 Operations Research II
- 430-716 Applied Regression Analysis
- 430-718 Advanced Quality Control
- 430-658 Project Management and Scheduling
- 430-615 Industrial Simulation
- 430-777 Thesis or      430-788 Project and  
                                  430-640 Intermediate Engineering Economy  
                                  430-678 Engineering Management

## **Ergonomics and Safety**

- 430-640 Intermediate Engineering Economy
- 430-664 Safety Engineering
- 430-730 Industrial Dynamics
- 430-712 Work Measurement Theory
- 430-665 Man/Machine Systems
- 430-626 Systems Analysis and Design
- 430-658 Project Management and Scheduling
- 430-716 Applied Regression Analysis
- 430-777 Thesis or      430-788 Project and  
                                 430-718 Advanced Quality Control  
                                 430-649 A Survey of Operations Research Methodologies

## **Systems Analysis and Design**

- 430-662 Reliability
- 430-615 Industrial Simulation
- 430-712 Work Measurement Theory
- 430-658 Project Management and Scheduling
- 430-626 Systems Analysis and Design
- 430-649 A Survey of Operations Research Methodologies
- 430-749 Inventory Systems Analysis and Design
- 430-730 Industrial Dynamics
- 430-777 Thesis or      430-788 Project and  
                                 430-716 Applied Regression Analysis  
                                 430-665 Man/Machine Systems

## **Industrial Engineering, Directory of Faculty and Courses**

- Arup K. Mallik, B.S., Jadavpur University, Calcutta; M.S., North Carolina State University; Ph.D., North Carolina State University; Professor
- Keyack H. Oh, B.S., Hanyang University; M.S., Oklahoma State University; Ph.D., Ohio State University; Associate Professor
- Babur Mustafa Pulat, B.S., M.S., Middle East Technical University; Ph.D., North Carolina State University; Associate Professor
- Pakize Simin Pulat, B.S., Middle East Technical University; M.S., North Carolina State University; Assistant Professor
- Mehmet Tayfur Altioik, B.S., M.S., Middle East Technical University; M.S., North Carolina State University; Assistant Professor

## **Courses**

- 430-615 Industrial Simulation
- 430-626 Systems Analysis and Design
- 430-640 Intermediate Engineering Economy
- 430-649 A Survey of Operations Research Methodologies
- 430-650 Operations Research
- 430-658 Project Management and Scheduling
- 430-660 Selected Topics in Engineering
- 430-662 Reliability
- 430-664 Safety Engineering
- 430-665 Man/Machines Systems
- 430-666 Special Projects
- 430-678 Engineering Management
- 430-712 Work Measurement Theory
- 430-716 Applied Regression Analysis
- 430-718 Advanced Quality Control
- 430-730 Industrial Dynamics
- 430-733 Operations Research II

- 430-749 Inventory Systems Analysis and Design  
430-788 Thesis  
430-789 Special Topics

## **MATHEMATICS and COMPUTER SCIENCE**

**Wendell P. Jones, Chairperson**

**Office: Marteena Hall 102**

### **Objectives for Industrial Engineering Programs:**

The School of Graduate Studies through the Department of Mathematics offers two curricula leading to the Master of Science in Education. One is intended primarily for individuals preparing to teach mathematics at the junior or senior high school level; the other is intended for individuals preparing to teach at the senior high school or junior college level or planning to continue with graduate studies leading to a doctorate in mathematics.

### **Degree Offered**

Mathematics, Secondary Education — M.S.

### **General Degree Requirements**

Professional education, subject-matter, credit, residence and other general requirements for this degree are based upon those of the University.

### **Departmental Requirements**

In addition to the general requirements specified in the description of the degree programs in Education, a student wishing to be accepted for the Master's degree program in Education with a concentration in Mathematics must have earned thirty (30) semester hours in mathematics including differential and integral calculus and differential equations. A student who fails to meet these qualifications will be expected to satisfy the requirements by enrolling in undergraduate courses before beginning his graduate studies in mathematics.

A student may not receive credit for a course which is equivalent to one for which he has received an undergraduate grade of "C" or above.

### **Junior High, Senior High Curriculum**

*Non-Thesis Option:* 30 semester hours required

In addition to the courses specified in the description of general requirements for a Master of Science in Education, the student must complete the following:

1. At least one mathematics course numbered higher than 626.
2. Fifteen additional hours from the following: Mathematics 600, 601, 602, 603, 604, 607, 620, 623, 624, 651, 652, 700, 710, 711, 715, 717, 720.
3. An elective of 3 semester hours in education or mathematics or in an area related to mathematics.

*Thesis Option:* 30 semester hours required

In addition to the courses specified in the description of general requirements for a Master of Science in Education, a student must complete the following:

1. At least one mathematics course numbered higher than 626.
2. Fifteen additional semester hours in mathematics from the following: Mathematics 600, 601, 602, 603, 604, 607, 620, 623, 624, 651, 652, 700, 701, 710, 711, 715, 717, 720.
3. A thesis focused on research in mathematics or in the teaching of mathematics.
4. Three hours of electives.



## Senior High, Junior College Curriculum

*Non-Thesis Option:* 30 semester hours required

In addition to the courses specified in the description of general requirements for a Master of Science in Education, a student must complete the following:

1. Nine semester hours in mathematics courses numbered higher than 626.
2. Nine additional hours from the following: Mathematics 600, 601, 602, 603, 604, 607, 620, 623, 624, 651, 652, 700, 701, 710, 711, 715, 717, 720.
3. An elective of three semester hours in education or mathematics or courses related to mathematics.

*Thesis Option:* 30 semester hours required

In addition to the courses specified in the description of general requirements for a Master of Science in Education, a student must complete the following:

1. Nine semester hours in mathematics courses numbered higher than 626.
2. Nine additional hours from the following: Mathematics 600, 601, 602, 603, 604, 607, 620, 623, 624, 651, 652, 700, 701, 710, 711, 715, 717, 720.
3. A thesis focused on a research in mathematics or in the teaching of mathematics.
4. Three hours of electives.

## Directory of Faculty and Courses

Bolindra N. Borah, B.S., Cotton College, India; M.S., Ph.D., Oregon State University; Professor

J. Octavio Diaz, Doctorate in Mathematics and Physics, University of Havana; Associate Professor

Joseph R. Gruendler, B.S., M.S., Ph.D., University of Wisconsin; Associate Professor

Herbert M. Heughan, B.S., M.S., Hampton Institute; Emeritus Associate Professor

Wendell P. Jones, B.S., A. and T. College; M.S., Ph.D., University of Iowa; Professor

Wilbur L. Smith, B.S., A. and T. College; M.A., Ph.D., the Pennsylvania State University; Professor

Richard R. Tucker, B.S., University of Washington; M.S., Ph.D., Oregon State University; Professor

## Courses

225-600 Introduction to Modern Mathematics for Secondary School Teachers

225-601 Algebraic Equations for Secondary School Teachers

225-602 Modern Algebra for Secondary School Teachers

225-603 Modern Analysis for Secondary School Teachers

225-604 Modern Geometry for Secondary School Teachers

225-606 Mathematics for Chemists

225-607 Theory of Numbers

225-608 Mathematics of Life Insurance

225-620 Elements of Set Theory and Topology

225-623 Advanced Probability and Statistics

225-624 Methods of Applied Statistics

225-625 Mathematics for Elementary School Teachers I

225-626 Mathematics for Elementary School Teachers II

225-631 Linear and Non-Linear Programming

225-632 Games and Queueing Theory

225-651 Methods in Applied Mathematics I

225-652 Methods in Applied Mathematics II

225-700 Theory of Functions of a Real Variable I

225-701 Theory of Functions of a Real Variable II

225-710 Theory of Functions of a Complex Variable I

225-711 Theory of Functions of a Complex Variable II

225-715 Projective Geometry

225-717 Special Topics in Algebra

225-720 Special Topics in Analysis

225-730 Thesis Research in Mathematics



## MECHANICAL ENGINEERING

Tony C. Min, Chairperson

Office: 108 Graham Hall

### Objectives for Industrial Engineering Programs:

The objective of the Master of Science in Mechanical Engineering Program is to provide advanced level study in mechanical engineering in three distinct areas of specialization as preparation for further advanced study at the doctoral level or for advanced mechanical engineering practice in industry, consulting or government service. The three areas of specialization are solid mechanics, thermal sciences and manufacturing and materials.

### Degree Offered

Master of Science in Mechanical Engineering

### General Program Requirements

Unconditional admission to the Master of Science in Mechanical Engineering Program requires a B.S. degree in Mechanical Engineering from an ABET accredited program with a minimum 3.0 grade point average on a 4.0 system. Conditional admission may be granted to holders of B.S.M.E. degrees from non-ABET accredited programs, to individuals with less than a 3.0 average and to individuals with a B.S. degree in another area of engineering or a closely related field with no more than twelve semester hours of deficiencies in required undergraduate courses.

### Departmental Requirements

Three degree options are available: *Thesis*, *Project*, and *Course Work Only*. The thesis option requires 24 semester hours of course work and 6 hours of thesis culminating in the preparation of a thesis on a scholarly research topic. The project option requires 30 semester hours of course work and 3 hours of special project culminating in a written and oral project report. The course work only option requires 33 semester hours of course work. A minimum of 50% of all course work must be at the 700 level. To graduate, a student must maintain a 3.0 grade point average.

## SUGGESTED PLANS OF STUDY

### Solid Mechanics

- 225-651 Methods in Applied Mathematics I
- 225-652 Methods in Applied Mathematics II or
- 400-648 Numerical Analysis for Engineers
- 400-602 Advanced Strength of Materials
- 400-624 Mechanical Vibrations or
- 400-778 Theory of Vibrations
- 400-672 Theory of Elasticity or
- 400-748 Advanced Theory of Elasticity
- One course in the thermal science or manufacturing/materials area
- 400-777 Thesis (6 hrs.) plus 6 additional hours of course work or 12 additional hours of course work plus 3 hours of special project or 15 additional hours of course work.

### Thermal Sciences

- 225-651 Methods in Applied Mathematics I
- 225-652 Methods in Applied Mathematics II or
- 400-648 Numerical Analysis for Engineers
- 400-609 Advanced Fluid Mechanics
- 400-735 Heat Transfer I — Conduction
- 400-762 Advanced Thermodynamics and Mass Transport
- One course in the solid mechanics or manufacturing/materials area

- 400-777 Thesis (6 hrs.) plus 6 additional hours of course work or 12 additional hours of course work plus 3 hours of special project or 15 additional hours of course work.

### **Manufacturing and Materials**

- 225-631 Linear and Non-Linear Programming  
 225-651 Methods in Applied Mathematics I or  
 225-652 Methods in Applied Mathematics II  
 400-675 Theories of Machining Processes  
 400-681 Numerical Control in Manufacturing or  
 400-682 Materials Forming  
 400-757 Physical Metallurgy of Industrial Alloys  
 One course in the solid mechanics or thermal science/area  
 400-777 Thesis (6 hrs.) plus 6 additional hours of course work or 12 additional hours of course work plus 3 hours of special project or 15 hours of additional course work.

### **Directory of Faculty**

- Tony C. Min, P.E., B.S., Chiao Tung University; M.S., Ph.D., Univeristy of Tennessee; Professor and Chairman  
 Suresh Chandra, B.S., Allahabad University, Banaras Hindu University; M.ChE., University of Louisville; Ph.D., Colorado State University; Professor and Dean  
 William J. Craft, P.E., B.S., North Carolina State University; M.S., Ph.D., Clemson University; Professor and Associate Dean  
 V. Sarma Avva, B.S., Saugor University; D.M.I.T., Madras Institute of Technology; M.S., Oklahoma State University; Ph.D., Pennsylvania State University; Professor  
 Botros M. Botros, P.E., B.S., Alexandria University; M.Engrg., Ph.D., Sheffield University; Professor  
 Rajinder S. Chauhan, B.S., G.N. Engineering College; M.Tech., Indian Institute of Technology; Ph.D., Auburn University; Assistant Professor  
 George J. Filatovs, B.S., Washington University at St. Louis; Ph.D., University of Missouri at Rolla; Professor  
 D. Yogi Goswami, P.E., B.S., Delhi University; M.S., Ph.D., Auburn University; Associate Professor  
 Amin M. Hague, B.S., Rajshahi University; M.S., Dacca University; M.S. and D.I.C., Imperial College; Ph.D., University of York; Adjunct Associate Professor  
 David E. Klett, P.E., B.S., Michigan State University; M.S., Ph.D., University of Florida; Professor  
 Chih Hwa Li, B.S., Chiao Tung University; M.S., University of Michigan; Associate Professor  
 W. Christopher Musselwhite, B.S., Appalachian State University; M.A., West Virginia University; M.S., North Carolina A&T State University; Assistant Professor  
 Kumar G. Punwani, B.Tech., Indian Institute of Technology; M.S., Syracuse University; Adjunct Assistant Professor  
 Jagannathan Sankar, B.E., University of Madras, India; M.E., Concordia University, Canada; Ph.D., Lehigh University; Assistant Professor  
 Lonnie Sharpe, Jr., B.S., North Carolina A&T State University; M.S., North Carolina State University; Ph.D., University of Illinois-Urbana/Champaign; Assistant Professor

### **Courses**

- 400-602 Advanced Strength of Materials  
 400-603 Statistical Thermodynamics  
 400-609 Advanced Fluid Dynamics  
 400-614 Mechanics of Engineering Modeling  
 400-624 Mechanical Vibrations  
 400-642 Design by Finite Element Methods  
 400-648 Numerical Analysis for Engineers  
 400-656 Modern Composite Materials  
 400-660 Selected Topics in Engineering  
 400-666 Special Projects

400-667	Intermediate Dynamics
400-672	Theory of Elasticity
400-675	Theories of Machining Processes
400-676	Tools, Jigs and Fixtures
400-679	Mathematical Theory of Plasticity
400-681	Numerical Control in Manufacturing
400-682	Materials Forming
400-683	Materials Joining
400-685	Mechanical Properties and Structure of Solids
400-688	Experimental Stress Analysis
400-708	Deformation Analysis in Metal Processing
400-710	Boundary Layer Theory
400-715	Continuum Mechanics
400-728	Advanced Dynamics
400-735	Heat Transfer I — Conduction
400-736	Heat Transfer II — Radiation
400-737	Heat Transfer III — Convection
400-738	Irreversible Thermodynamics
400-740	Machine Tools and Tool Design
400-742	Mechanical Properties and Theories of Failure
400-743	Energy Methods in Applied Mechanics
400-746	Phase Equilibria
400-748	Advanced Theory of Elasticity
400-750	Theory of Elastic Stability
400-757	Physical Metallurgy of Industrial Alloys
400-762	Advanced Thermodynamics and Mass Transport
400-777	Thesis
400-778	Theory of Vibrations
400-780	Mechanical Metallurgy
400-788	Research
400-789	Special Topics

## **MUSIC**

**Clifford E. Watkins, Chairperson**  
**Office: Frazier Hall**

### **Courses Offered for Advanced Undergraduate and Graduate**

219-609	Music in Early Childhood
219-610	Music in Elementary Schools Today
219-611	Music in the Secondary Schools Today
219-614	Choral Conducting of School Music Groups
219-616	Instrumental Conducting of School Music Groups
219-618	Psychology of Music
219-620	Advanced Music Appreciation

## **PHYSICS**

**Jason Gilchrist, Chairperson**  
**Office: 109 Cherry Hall**

### **For Graduate Students Only**

227-705	General Physics for Science Teachers I (Formerly Physics 3885)
227-706	General Physics for Science Teachers II (Formerly Physics 3886)
227-707	Electricity for Science Teachers (Formerly Physics 3887)
227-708	Modern Physics for Science Teachers I (Formerly Physics 3888)
227-709	Modern Physics for Science Teachers II (Formerly Physics 3880)

## **PLANT SCIENCE AND TECHNOLOGY**

**Samuel J. Dunn, Chairperson**

**Office: 238 Carver Hall**

### **Courses Offered for Advanced Undergraduates and Graduates**

#### **Landscape Architecture**

- 100-601 Environmental Perception and Design Determinants
- 100-602 Qualitative Analysis in Landscape Planning
- 100-603 Land-Use Planning and Management
- 100-604 Factors of Physical Design

#### **Agricultural Engineering**

- 130-600 Soil and Water Conservation Engineering I
- 130-601 Advanced Farm Shop
- 130-602 Special Problems in Agricultural Engineering
- 130-700 Rural Electrification for Vocational Agricultural Teachers

#### **Crop Science**

- 130-603 Plant Chemicals
- 130-604 Crop Ecology
- 130-605 Breeding of Crop Plants
- 130-606 Special Problems in Crops
- 130-607 Research Design and Analysis
- 130-702 Grass Land Ecology

#### **Earth Science**

- 130-616 Environmental Planning and Natural Resources Management
- 130-622 Environmental Sanitation and Waste Management
- 130-624 Earth Science, Geomorphology
- 130-625 Earth Resources
- 130-626 Aquaculture
- 130-627 Strategies of Conservation
- 130-703 Topics in Earth Science
- 130-704 Problem Solving in Earth Science
- 130-705 The Physical Universe
- 130-706 Physical Geology
- 130-708 Conservation of Natural Resources
- 130-709 Seminar in Earth Science

#### **Horticulture**

- 130-608 Special Problems in Horticulture
- 130-610 Commercial Greenhouse Production I
- 130-611 Commercial Greenhouse Production II
- 130-612 Plant Materials and Landscape Maintenance
- 130-613 Plant Materials and Planning Design

#### **Plant Science**

- 130-618 General Forestry
- 130-609 Special Problems in Soils

### **For Graduate Students Only**

- 130-710 Soils of North Carolina

## **Soil Science**

130-609 Special Problems in Soils

### **For Graduate Students Only**

130-710 Soils of North Carolina

## **POLITICAL SCIENCE**

**Amarjit Singh, Acting Chairperson**

**Office: 223 Gibbs Social Sciences Building**

### **Courses Offered for Advanced Undergraduates and Graduates**

- 237-640 Federal Government
- 237-641 State Government
- 237-642 Modern Political Theory
- 237-643 Urban Politics and Government
- 237-644 International Law
- 237-645 American Foreign Policy — 1945 to Present
- 237-646 The Politics of Developing Nations
- 237-647 Research and Current Problems
- 237-653 Urban Problems

### **For Graduate Students Only**

- 237-730 Constitutional Development Since 1865
- 237-741 Comparative Government
- 237-742 Research and Current Problems
- 237-743 Readings in Political Science

## **SAFETY AND DRIVER EDUCATION**

**I. Barnett, Chairperson**

**Office: Price 112**

### **Degree Offered**

Safety and Driver Education — M.S. Degree

### **General Program Requirements**

The admission of students to the graduate degree programs in the Department of Safety and Driver Education is based upon the general admission requirements of the University.

### **Departmental Requirements**

The graduate majors in Safety and Driver Education must complete 30 semester hours of course work at the graduate level.

1. (The major course selection is competency based.)
  - a. Six semester hours from the following areas in Education
    - (1) The Nature of the Learner and the Learning Process
    - (2) Current Critical Issues in American Education
    - (3) Historical, Philosophical, and Sociological Foundations of Education
    - (4) Curriculum, Supervision, etc.
  - b. Eighteen hours in Safety and Driver Education  
(SDE 653, 756, and 757 are required courses)

- c. Three hours of electives
- d. Thesis (optional)
- 2. Other Requirements
  - a. A minimum of 3.0 grade point average for all graduate courses
  - b. Final comprehensive examination in Education and Safety and Driver Education
  - c. Qualifying Examination

### **Career Opportunities**

A degree in this field prepares students for careers in such fields as Teaching, Research, State Agencies, Federal Agencies Fleet Supervisors, and lost control specialist in the Insurance Industries.

### **Directory of Faculty and Courses**

Isaac Barnett, B.S., M.S., North Carolina A&T State University; Ed.D., Michigan State University; Professor

Nancy G. Hinckley, B.S., Trenton State College; M.S., Ph.D., Michigan State University; Assistant Professor

Jack N. Green, Sr., B.S., Southeastern State College; M.A., George Peabody College; M.S., Oklahoma State University; Assistant Professor

Horlin Carter, B.S., M.S., Marshall University, Ph.D., Michigan State University; Assistant Professor

### **Courses**

- 360-651 Driver Education and Teaching Training
- 360-652 Advanced Driver Education and Teacher Training
- 360-653 Driver Education and General Safety
- 360-654 Highway Transportation Systems
- 360-655 Automotive Technology for Safety and Driver Education
- 360-656 Highway Traffic Administration
- 360-657 Traffic Engineering in Safety and Driver Education
- 360-658 Curriculum Integration of Safety Education
- 360-659 Motorcycle Safety Education
- 360-750 Innovations in Safety and Driver Education
- 360-751 Psychological Factors in Safety and Driver Education
- 360-752 Alcohol and Safety and Driver Education
- 360-755 School and Occupational Safety
- 360-756 Seminar in Safety and Driver Education
- 360-757 Administration and Supervision of Safety and Driver Education
- 360-758 Independent Project in Safety and Driver Education
- 360-759 Thesis Research in Safety and Driver Education

## **SECONDARY EDUCATION AND CURRICULUM**

**Dorothy Prince Barnett, Chairperson**

**Office: 201 Hodgin Hall**

The Department of Secondary Education and Curriculum provides the professional studies component for the preparation of teachers and other school personnel at the bachelor's degree and master's degree levels. The department cooperates with the various academic departments of the University for teacher education preparation.

At the master's degree level, approximately 20 to 40 percent of the graduate program is required for professional studies. Candidates for degrees in elementary education (Early Childhood Education, Intermediate) must complete a minimum of 12 semester hours and candidates in secondary education must complete a minimum of six semester hours in



professional studies. Professional studies courses are selected from the following areas:

1. Research
2. The nature of the learner and the learning process
3. Current critical issues in American education
4. Historical, philosophical and sociological foundations of education
5. Curriculum

### Directory of Faculty and Courses

Dorothy Prince Barnett, A.B., Oberlin College; M.A., Syracuse University; Ed.D., Indiana University; Professor

Alfonso E. Gore, B.S., Bluefield State College; A.M., West Virginia University; C.A.G.S., Ed.D., Boston University; Professor

Charles Hayes, A.B., Leland College; Ed.M., Loyola University (Illinois); Ed.D., University of Northern Colorado; Professor

Frissell Jones, B.S., Hampton Institute, M.Ed., D.Ed., Pennsylvania State University; Professor

Sarah S. Nelson, B.S., Allen University; M.S., Hunter College; Ph.D., Florida State University; Assistant Professor

Albert Spruill, B.S., A.&T. College; M.S., Iowa State University; Ed.D., Cornell University; Professor and Dean of Graduate School

<b>Courses, Advanced Undergraduate and Graduate</b>	<b>Credit</b>
311-602 Extramural Studies II	1-3
311-605 Concepts of Career Education	3 (3-0)
311-606 Curricular Integration of Career Education Programs	3 (3-0)
311-607 Administration of Career Education Programs	3 (3-0)
311-608 Seminar in Career Education	3 (3-0)
311-625 Theory of American Public Education	3 (3-0)
311-626 History of American Education	3 (3-0)
311-627 The Afro-American Experience in American Education	3 (3-0)
311-628 Seminar and Practicum in Urban Education	3 (1-4)
311-641 Teaching the Culturally Disadvantaged Learner	3 (3-0)

### Graduate Students Only

311-700 Introduction to Graduate Study	2 (2-0)
311-701 Philosophy of Education	3 (3-0)
311-702 Reading in Modern Philosophy of Education	3 (3-0)
311-703 Educational Sociology	3 (3-0)
311-710 Methods and Techniques of Research	3 (3-0)
311-711 Educational Statistics	3 (3-0)
311-720 Curriculum Development	3 (3-0)
311-722 Curriculum in the Secondary School	3 (3-0)
311-723 Principles of Teaching	3 (3-0)
311-724 Problems and Trends in Teaching Science	3 (3-0)
311-725 Problems and Trends in Teaching Social Sciences	3 (3-0)
311-727 Workshop in Methods of Teaching Modern Mathematics for Junior and Senior High School Teachers	3 (3-0)
311-780 Comparative Education	3 (3-0)
311-782 Issues in Secondary Education	3 (3-0)
311-784 Current Research in Secondary Education	3 (3-0)
311-S785 Independent Readings in Education I	1 (0-2)
311-S786 Independent Readings in Education II	2 (2-4)
311-S787 Independent Readings in Education III	3 (0-6)
311-S790 Seminar in Educational Problems	3 (1-4)
311-S791 Thesis Research	3

**SPEECH AND DRAMA**  
**Mary Tuggle, Chairperson**  
**Office: 304 Crosby Hall**

**Courses Offered for Advanced Undergraduate and Graduate**

- 215-610 Phonetics
- 215-620 Community and Creative Dramatics
- 215-633 Speech for Teachers
- 215-636 Persuasive Communication
- 215-637 Television Production
- 215-638 Television in Education
- 215-650 Theatre Workshop

**SOCIOLOGY AND SOCIAL WORK**  
**Sarah V. Kirk, Chairperson**  
**Office: 201 Gibbs Hall**

**Courses Offered for Advanced Undergraduate and Graduate**

- 235-600 Seminar in Social Planning
- 235-601 Seminar in Urban Studies
- 235-625 Sociology/Social Service Internship
- 235-650 Independent Study in Anthropology
- 235-651 Anthropological Experience
- 235-669 Small Groups
- 235-670 Law and Society
- 235-671 Research Methods II
- 235-672 Selected Issues in Sociology
- 235-673 Population Studies
- 235-674 Evaluation of Social Programs
- 235-701 Seminar in Cultural Factors in Communication



































